THE MODEL CRAFTSMAN

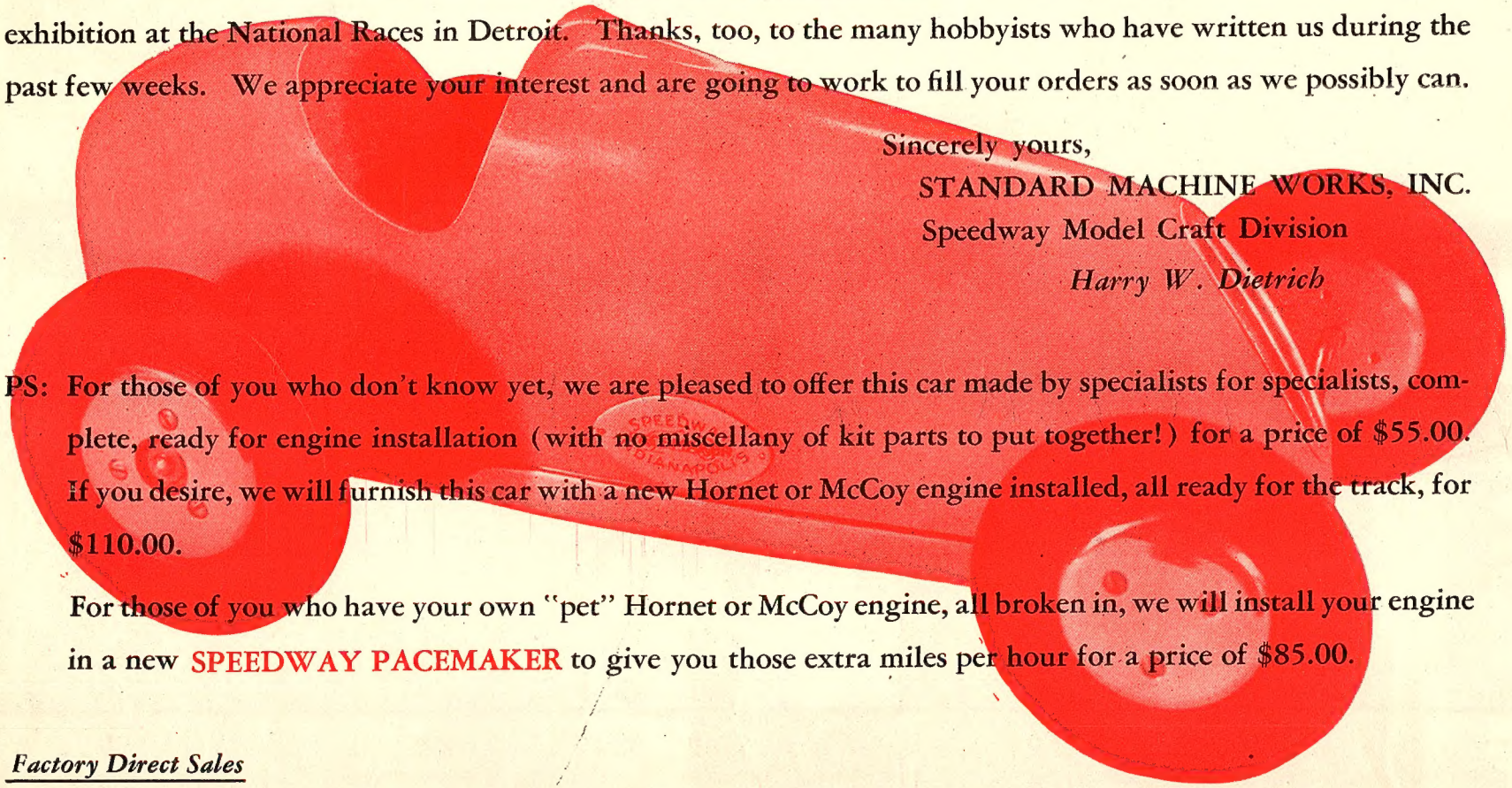
SEPTEMBER 1946 • 25 CENTS

Results of
RACE CAR NATIONALS
see pages 43 & 46

— — THANKS!

To all you model race fans who gave our SPEEDWAY PACEMAKER such an enthusiastic welcome during our exhibition at the National Races in Detroit. Thanks, too, to the many hobbyists who have written us during the past few weeks. We appreciate your interest and are going to work to fill your orders as soon as we possibly can.

Sincerely yours,
STANDARD MACHINE WORKS, INC.
Speedway Model Craft Division
Harry W. Dietrich



PS: For those of you who don't know yet, we are pleased to offer this car made by specialists for specialists, complete, ready for engine installation (with no miscellany of kit parts to put together!) for a price of $55.00. If you desire, we will furnish this car with a new Hornet or McCoy engine installed, all ready for the track, for $110.00.

For those of you who have your own "pet" Hornet or McCoy engine, all broken in, we will install your engine in a new SPEEDWAY PACEMAKER to give you those extra miles per hour for a price of $85.00.

Factory Direct Sales

. . . to give you personal service with "follow through", the key to excellence in any sport.

Speedway Model Craft Div.
Standard Machine Works, Inc.
1327 N. Capitol Ave.
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*Out in California, Frank Hegemeyer has made a profitable full-time job out of his life-long hobby — hand-made reproductions of Early American and Colonial furniture.

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IT'S A PLEASURE WITH X-ACTO!

*AND in his work he finds X-acto hobby knives "of untold value". With the help of X-acto, Mr. Hegemeyer has filled his home with beautiful furniture . . . created material for his fascinating how-to-do-it articles . . . and had a whale of a lot of fun!

Expert Hegemeyer has high praise for the way X-acto blades "hold a keen cutting edge over a long period . . . and their adaptability to the many types of cutting jobs encountered in my shop." No wonder! For X-acto gives you

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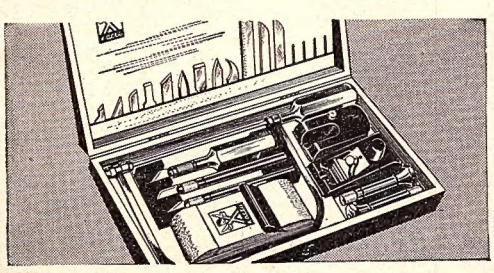
of fine surgical steel, scalpel-sharp. *Three all-metal handle styles.* (No more substitute plastics!) X-acto's safety grip and easy control make it the ideal knife for experts *and* beginners . . . for paper, leather, wood, plastics. If you build models, whittle, carve, or just fix things around the house, you'll turn out better jobs with X-acto. And have *more fun!*

ALL METAL

X-acto No. 2 Solid Duraluminum Knife . . . **50c**

With 5 assorted blades, $1. Other X-acto Knives, Tools, Chests, 50c to $12.50.



It's Got Everything! No. 85 X-acto Tool Chest — 3 all-metal knives; full assortment of blades; saw; sander; stripper; planer; drills and holders; steel ruler; complete in wooden chest, $12.50.

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X-acto Crescent Products Co., Inc., 440 Fourth Ave., New York 16, N.Y.
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**Reg. U. S. Pat. Off.*

RAILROAD CLUB NEWS

HOLLIS, NEW YORK. The Hollis Model R. R. Assn. of 202 104th Ave. lost one of their members after visiting the L. I. R. R. Club in Astoria during their last show. It seems that this member couldn't see criticizing other work done by clubs. Apparently, the Hollis boys were giving helpful criticism and thought that it should be welcomed. Knowing the fellas from Long Island, I'm sure it was welcome. Never mind, Nick, your intentions were good and the loss shouldn't be felt too greatly!

According to Nick Munzing, Club secretary at Hollis, appointments can be had for other clubs to visit their layout at any time, and they will welcome helpful criticism of their work and exchange ideas with anyone. Bring along all the rolling stock you can carry for 3-rail, AC or DC. Operating nights are Fridays at 8 P. M. Address the secretary at 107-16 123rd St., Richmond Hill 19, N. Y.

NEW YORK, N. Y. The N. Y. Division of the Electric Railroaders Assn. are sponsoring an excursion over the Pennsylvania R. R. lines on October 20th. The tour will begin at the Pennsy station in Jersey City, and will include the freight terminal at Harsimus Cove, the engine servicing facilities at Meadows Engine House, the yards at Waverly, the Marine terminal at Greenville, the freight terminal at South Amboy and finally a run over the historic Camden and Amboy line.

The trip is being sponsored on a non-profit basis and offers an excellent opportunity to inspect the terminal facilities of the New York area. Unlimited photography will be permitted. All interested persons are invited to join in this tour, and reservations may be procured at 51 West 35th Street.

NEW YORK, N. Y. The New York Society of Model Engineers have gotten a temporary reprieve from the housing shortage. Because of the Fair Rent Laws of New York State, they can not be evicted until June '47 at the earliest. This would have been a terrific set back as their shop facilities have just been overhauled. In order to further assist younger model builders, a new type of membership has been established for the 16 to 21 year old age group. Programs such as this will continue to make this society a leader in all phases of model activity.

ROCHESTER, N. Y. A new OO gauge club has recently been organized at 37 Rye Road, called the "Genesee Valley Railroad Club." Now under construction is a pike called the Great Lakes and Eastern Railroad. More news will follow.

WASHINGTON, D. C. The Metropolitan Society of Model Engineers is promoting a fan trip over the Old Main Line of the B & O September 22nd. The special train will leave Washington at 9:00 A. M. and proceed to Baltimore to pick up anyone from the Northern area. The tour will include a short stop at Bath, then on to Mt. Airy for a stop of 45 minutes. A two hour stop will be made at the shops in Brunswick, to see the power shops, roundhouses, etc. Historically this is one of America's most interesting lines. The round trip will cost $2.30, and wives and girl friends are cordially invited. Please make your reservations as early as possible. Anyone interested contact C. L. Butler, 4623 31st Road, Arlington, Va., or Corr's Hobby Shop of Washington.

MILWAUKEE, WISCONSIN. The Cream City Model Railroad Club of 1860 North Prospect Ave. is on the look out for any new members. At the present time they have a small layout in operation which will be enlarged as soon as their membership permits. They have a lot to offer anyone interested in HO gauge. What do you say, Fellas!

LOS ANGELES, CALIF. The Westlake Model R. R. Assn. of 1814 West Ninth Street claims to be one of the oldest HO clubs with its charter members still active. They are very proud of the fact that they have built the first HO Circus train in the country (see April '41 issue Ed.). Their meetings are held every Friday night and open house is held the last Sunday of each month. W. Shofner is Pres., R. Graham—Vice Pres. and Editor of their club paper, J. Donart—Treas. and C. Peck—Sec.

SANTA BARBARA, CALIF. The Channel Railroad Club of 715 Bath Street has decided to discontinue their first Sunday of the month shows in favor of two large shows per year. In this way they will have a chance to make the necessary layout improvements and changes.

One of their charter members, Tex Guess, has just been discharged from the Army. He is leaving his many freight and passenger cars with his old club on a long term lease while he holds down a new position in Albuquerque, New Mexico.

THE MODEL CRAFTSMAN

Including "THE MODELMAKER" and MINIATURE RAILROAD Magazine—Established 1924

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SEPTEMBER, 1946 Vol. 15, No. 4

WHERE'S MODEL CRAFTSMAN?

You should really increase your circulation a bit! It took a trip to the Indianapolis Classic "500" to discover your magazine! "The Model Craftsman" was recommended to me very highly in the "500" town for model race car items. Please enter my subscription at once! . . . *K. Bittle, Hagerstown, Md.*

MAG'S IMPROVING

Purchased the May issue of Craftsman yesterday at the Hobby Store and read the article on the Pacific Electric 600-700 series, and really liked it very much!

My main squawk is your drawings should be made in ¼" scale with full sized dimensions where possible, and when this is impossible dimensions can be taken directly from the drawing. The PE car drawing is considerably larger than ¼" or 17/64" scale, otherwise the article itself is about the best I've read in MC for a long time. Let's keep 'em up like that as this is the only break we trolley modelers get. . . . *F. Kellogg, Cleveland, Ohio*

(Better check again, for the plans are drawn full-size O gauge—The Editor.)

ADVERTISING PRINCIPLES

Let's have the advertisements of the producers and distributors of hobbycraft goods be more restrained to the point of only advertising goods which are available in sufficient quantities for consumers to buy on the basis of the advertising. Remember the present administration is still trying to carry on the war (against the American consumer) by the means of encouraging shortages in any field they can attack. This wistful advertising is hurting the trade. Enclosed is a copy of Principles of Advertising as advocated by the Advertising Federation. Model advertising is a frequent violator of the second point. "Good advertising tells the truth, avoiding misstatement of facts as well as possible deception through implication or omission. It makes no claims which cannot be met in full and without further qualification. It uses only testimonials of competent witnesses." . . . *J. H. Watters, New Albany, Ind.*

(We agree with you perfectly, however, all of our advertisers are reliable and are to be commended for their fine work despite the trying conditions under which they are working. They are having many more troubles producing their goods than the hobbyist has to procure them. Patience and understanding should be the consumer's keynote—Editor.)

DENVER FAN

I read your mag from cover to cover every month and think it's a fine publication. Of the various subjects covered, I prefer the "O" gauge railroads. Would it be possible for you to have some plans for an O gauge wrecking crane to be printed in the near future. . . . *J. Thompson, Jr., Denver, Col.*

(Watch our next few issues—Editor.)

From Maker of Champions... New "O.K." 29

O.K.

Monarch of the Air!

Way up high . . . in the wide, blue yonder . . . where "OK" takes you fast, these engines are the "blue-blooded" line, monarch of all they survey!

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Step in line with outstanding American modellers . . . build around an "OK" power plant in the confidence that you will receive a ceiling run for your money, every time you want to fly!

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SPECIFICATIONS: Bore: .760, Stroke: .660, Displ.: .299.

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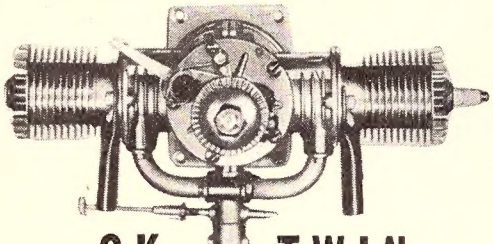
It's tried . . . it's proven . . . it's tested . . . it's an old friend. proved by exhaustive laboratory tests—confirmed by modellers from coast to coast in "free" and "tethered" flight — "OK" Super 60 has exceptional thrust, torque and endurance. SOME features are High Turbulence Piston Head, Rotary valves, Ball Bearing Radial and Thrust.

$18.00

Incl. Spark Plug Bakelite Tank & Fuel Line

'OK' IGNITION PACK: Fitted with 'OK' Coil, Condenser and Lead, $3.00. SPECIFICATIONS: Bore: .900; Stroke: .950; Displ.: .604; Weight (bare): 12 oz.



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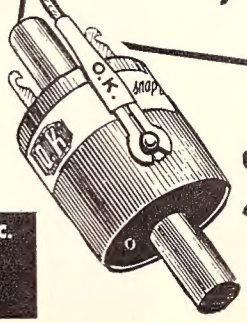
"OK" TWIN-IGNITION PACK: Fitted with Twin-Coil, Condenser and Leads, $6.00.



New O.K. Coil

"OK" Ignition Pack ("OK" Coil, Hi-Tension Lead and Condenser) are recommended for top performance! $3 additional. Pre-packed with "OK" Engines, at the factory. We recommend you include these units when purchasing engines.
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Export Office: 120 Wall St., New York 5
CABLE ADDRESS (All Cables) "Concordia", New York

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2.35 ACTUAL SIZE

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makes space available where space is needed... IT'S 2¼" (overall) HIGH... ⅞" WIDE... ½" DEEP and WEIGHS BUT 1 OUNCE...World's Smallest

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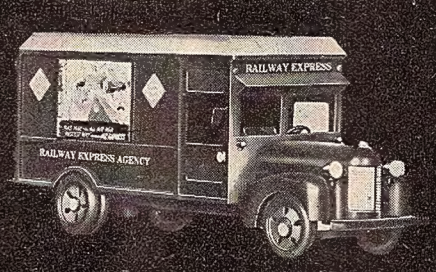

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NMRA CONVENTION APPROACHING

FINAL preparations are being made for the biggest NMRA Convention to be held at Detroit, Mich., over the Labor Day weekend. This is their first big meeting since 1944 and promises to hold plenty of attraction for all members.

The Detroit Club, despite its many setbacks, has obtained new quarters for their elaborate layout and even promises timetable operation on their new O gauge, two rail Detroit Union RR.

Fort Shelby Hotel has been made Convention headquarters where all the boys will get together for their meetings, with an opportunity to meet their fellow rail fans. Exhibition and display space for manufacturers has gone rapidly, indicating there will be much to see in the way of new products, etc. A full schedule of events include Fan Trips, banquet, business meeting, plus the timetable operation of the Detroit layout. Full results will follow next month in this column.

CASTING METALS

THESE alloys are the result of long continued experiments on the part of a manufacturer, with the object of obtaining a metal which would have moderate hardness and wearing qualities, and yet be of a sufficiently low melting point to permit the use of bronze moulds for casting.

The first alloy has the appearance of aluminum when finished, and should be poured soon after melting. It machines well, and takes a fine polish. The composition is as follows: Copper, 6 parts; tin, 12 parts; lead, 150 parts; antimony, 30 parts. The copper and lead are melted first, and the other metals stirred in. Use ordinary lubricating oil with 3 parts kerosene added.

Zinc, 6 parts; tin, 1 part; copper, 6 parts; lead, 24 parts. Add the zinc to the rest of the metal after they are melted, and pour as soon as it is stirred up thoroughly.

Lead, 40 parts; antimony, 7½ parts; tin, 2½ parts; bismuth, ⅛ part. This metal is widely used where shocks have to be withstood.

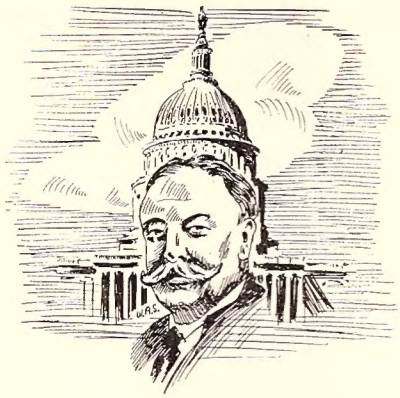
For making plaster moulds, patterns may be made of the following alloy, which is afterwards melted out, without opening the mould. It melts at 220 deg. Fahrenheit. Lead, 3 parts; tin, 2 parts; bismuth, 2.5 parts. The plaster mould is cast round the pattern which is then heated gently to the melting point of the alloy, which is shaken out. This method allows very complex casting to be made, but a new mould is needed for each casting.

For cementing glass an alloy of lead similar to the low temperature melting mixture mentioned above may be used. It will adhere to glass when using olive oil as a flux.

Due to the oil preventing the solder from sticking to the metal to which it is desired to attach the glass, it should be tinned before making the joint.

CORR'S SERVICE

All during William Taft's administration as the twenty-seventh president of the United States, Corr's were serving hobbyists through-



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Model R.R. Engineering	3.50
Model R.R. Plan Package	1.00
Fun With A Model R.R.	1.00
Model R.R., by E. P. Alexander	5.00
Wylams' Scale Models—No. 1 & No. 2	1.50

"MISC'L R. R. ITEMS"

Rail Joiners "HO" brass, 100 for	$ .90
Rail Joiners "O" brass, 100 for	1.00
Varney Tie Strip "HO", 100 feet	1.50
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Assembled "HO" Turnouts, Brass	2.25
Varney "HO" Boiler Castings Consol. Pacific Dockside, ea.	4.50
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Miss Behave Streamline	4.95
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Voltmeter 0-15 (DC)	ea.	3.00
Armatures, 5 pole—12 volt		2.75
Motor DC71, 12 Volt	7.00	
Motor DC60, 12 Volt	5.00	

CIRCUS CARS "O" GA.

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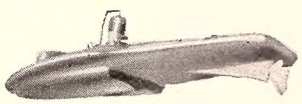
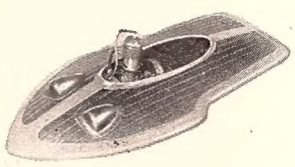
Water Wagon	$2.00
Stock Car	2.95
Flat Car	1.50
Canvas Wagon	1.75
Baggage Wagon	2.00
Calliope	3.00
Stake & Chain Wagon	2.00
Paint Sets for Circus Cars	sets 1.50



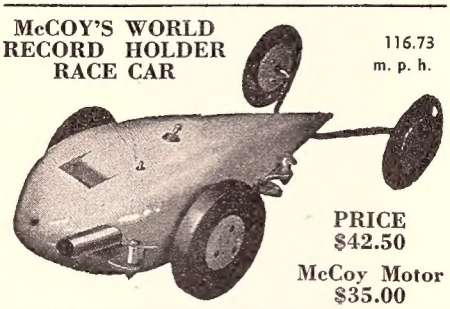
Duralyt Hydro-Flyer Speed Boat

Kit complete with coupling, prop, shaft, shaft log, etc. For A, B, and C. Motors ...$9.95
22" long — 11" Beam



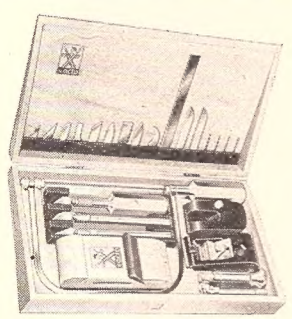
McCOY'S WORLD RECORD HOLDER RACE CAR

116.73 m. p. h.



PRICE $42.50

McCoy Motor $35.00



No. 85 X-acto Tool Chest—3 all-metal knives; full assortment of blades; saw; sander; stripper; planer; 2 drill holders; 10 drills; 6" steel ruler; Complete in wooden chest, $12.50. (Illustrated)

X-ACTO #1 & #2 Knife	$ .50
#51 & #52 Knife	1.00
#5 Mat Knife	1.00
#83 Deluxe Knife Set	5.00
#80 Whittlers Set	2.00

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Jewelers Screw Drivers—Set of 6	3.50
Set of 6—small size	1.50
Jewelers Saws	98c
Extra Blades ....Doz.	60c
Extra Fine Blades	1.00
Carving Chisels—Set of 6	3.00
Alcohol Lamps	75c—85c—95c
Pin Vises—large wood handle	$ 1.00
Small Double End	1.00
Hammers—Jewelers Slim Handles	1.50
Pliers—Wire Forming	1.75
Anvils—Jewelers	$1.95 (plus 25c P.P.)
Graham Modelers Vise	2.95
Handee Motor Tool, complete with acces.	25.00
Burgess Deluxe Vibro Tool complete with acces.	16.50
New Burgess Vibro Tool	7.50
Dremel Motor Tool, complete with acces.	23.50

"STAR LINE"

HO Truss Bridge Kit	$1.75
HO Cattle Pen Kit	1.00
HO Trestle Kit	1.25
HO Under-Pass Kit	3.00

LEHIGH "HO" KITS

40' Box Cars, 6 nos., comp.	$2.50
Athearn's "O" Ga.	
50' Auto Cars (less trucks)	$4.90
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Reefer Stock Box Body Kits, improved	$1.50
Flat Car Kits complete (less trucks)	3.00
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Hardware Kits only	2.75

Good Bros. Radio Control Unit complete $59.50

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Aero Coils, Quality	3.00
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Universal Needle Valves	.75
Universal Joints	.75
Storage Batteries, 2 volt	2.75
Storage Batteries, 4 volt	3.50
Champion Spark Plugs, ¼ or ⅛	.50
Battery Boxes, Sm-Med., ea.	.40
Landing Gears, Davis "A-B"	2.85
Landing Gears, Davis "C"	3.45
Motor Mounts, lg., 60c; med.	.50

"HO" LOCO KITS

Varney Dockside Switcher	$15.00
Mantua 8 Ball	28.50
Collier's GG1 casting set comp. with 2 motors—less wheels	23.00
Drive wheels and axles for above	6.00

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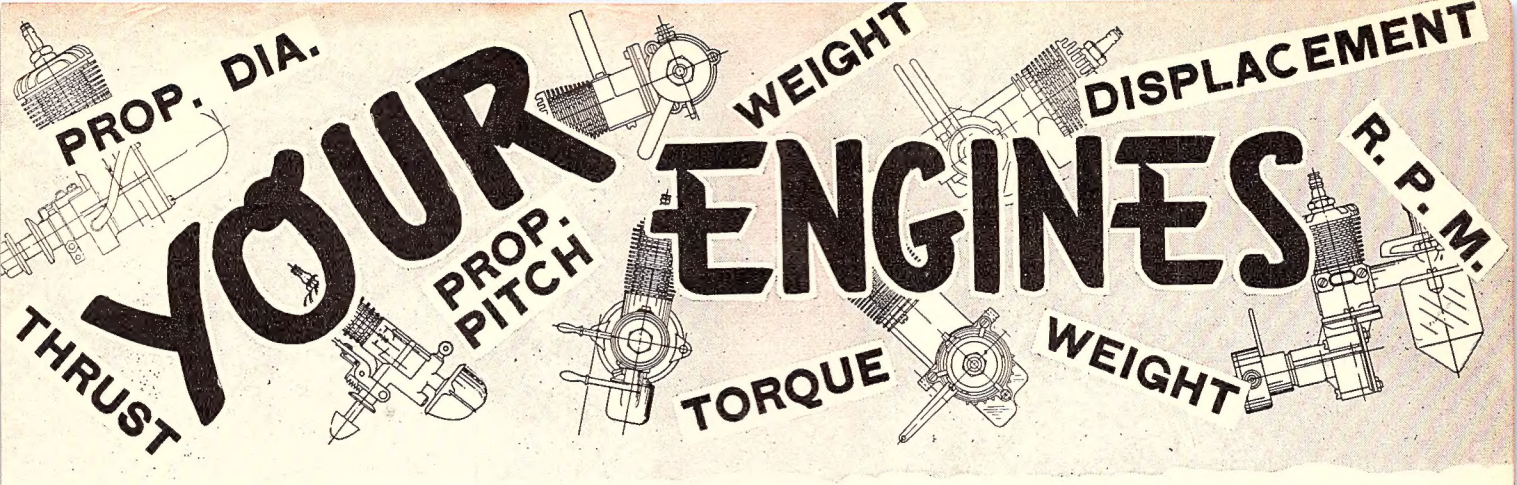


PART II

CLASS "C" ENGINES

THE big babies in the model engine field come into the limelight in this issue, the second part of the MODEL CRAFTSMAN engine survey. Class "C" engines (those engines having piston displacement from .30 to 1.25 cu. in.) seem to have the greatest appeal to the majority of modelers, particularly so in control line speed flying. This class of engine is not only the largest, but also the most powerful and noisiest. Whether the noise or the power is the greatest source of attraction is still an unanswered question.

All Class "C" engines that were available to the modeling public were rounded up and included in this survey. A big question which confronted our testing staff was how the so-called racing engines should be tested. Our original testing plan was to test all engines on the same fuel mixtures (3 parts gas to 1 part SAE 70 oil) and with propellers that would normally be used with each engine. These racing engines usually are flown in speed models and very seldom in the larger free flight models. Therefore, testing these engines with only the large diameter propellers (13" and 14" diameter) would not be too enlightening to the builder. Also, testing these engines with the usually small diameter, high pitch (10"-10" pitch) allowed the engine to really "deliver" but the thrust-torque readings were very poor. It is a known fact, that propellers at high angles of attack (high pitch while at "O" MPH) deliver very little thrust and considerable torque. The average readings were 2 lbs. thrust with 6" 3 oz. torque, proving this fact. These figures are particularly meaningless to the engine owner since the thrust increases with the forward speed, at a much different rate than the lower pitch propellers. It was decided that the only tests on these engines using the smaller propellers would be for RPM alone. Another problem was the fuel. These race engines were designed to perform with "hot" fuels and do not deliver peak performance on the regular gasoline mixtures. Therefore, the tests on the McCoy, Hornet and Kencraft, were made with these hot fuels. In a future issue, we will present the results obtained by testing a stock engine with all different types of fuels—it should prove quite interesting.

As in Class "A" and "B" engines tested, Class "C" engines were *stock engines* as *you* would buy them. They were individually broken in until they were free and would respond to the advance of the spark, and leaning of the fuel-air mixture. The same thrust-torque meter and strobotac were used. Generally, all conditions were the same as in the Class "A" and "B" tests. Therefore, the findings presented in this part of the survey can be compared with the results presented in Part 1. We pursued the same policy as in the previous tests of not "doctoring" the engines in any way except for adjusting the timer points gap or spark plug gap to compensate for wear and usage. The readings are presented in the same manner as before with the engine listed with its weight and displacement.

Under the propeller diameter-pitch notations are the RPM, thrust and torque. RPM are direct readings and thrust is read in pounds and fractions thereof. Torque is read with the constant of 6" preceding the ounce figure. To illustrate: on the OK super 60 engine readings with a 14" diameter propeller having an 8" pitch, the RPM is 5250, while delivering 4¾ lb. of thrust and having a torque of 6" 3¾ oz. All other listings are read in the same manner. Readings of RPM with a 7 oz. flywheel are listed on the bottom of each engine group. It is interesting to note that with an increase in RPM, the thrust and torque increases as well. Also another interesting finding is the difference of torque of various engines with the same propeller. Torque is a factor in determining power and these engines that develop more torque than others can be assumed to be more suitable when placed under a greater working load, i.e., such as using a larger diameter propeller with greater pitch. Also included is a photograph of the engine and two views showing the necessary five dimensions for mounting and cowling of each engine. The results shown in the "Engine Survey" can be used to great advantage by model builders or designers.

Basically, this survey shows figuratively how piston displacement directly affects the horsepower of an engine. The larger displacement engines are found to turn over propellers with greater diameter and pitch than the smaller engines at a higher RPM. The difference of RPM between the various engines, regardless of piston displacement, is very inconsistent, which could lead us to the conclusion that displacement is not a basic factor influencing the rotating speed of an engine. Only through exhaustive tests has it been found that RPM is affected by ignition timing, porting, carburetion and internal friction. These are the factors which determine the RPM of your engines! Because of the tremendous progress made on the internal design of present day engines, the RPM has been increased appreciatively. This is borne out by the racing engines having the same displacement of ten years ago and developing almost ¼ to ½ as much additional power and in some cases, more. Ignition timing systems have also been improved, particularly on cam designs. The higher speed engines, on the average, have rounded flats on the cams so the points do not flutter at the higher speeds—10,000 RPM and higher. This one design feature of an engine determines its ability to run smooth at the higher RPM's.

The porting of the engine also affects the power, regardless of displacement. Normally the intake is opened when the piston is before top dead center and the exhaust opens fully at bottom dead center. The fuel by-pass normally opens prior to the opening of the exhaust port to allow for early intake and better scavenging of the burned gases. This is the normal porting system. It has been found in the many years of research and experimentation that this porting places a very important part on the performance of these miniature engines. The faster engines have their ports much larger than usual to allow for more rapid transfer of the gases. These engines also allow the fuel to enter the crankcase and also into the combustion chamber (cylinder) quicker, thereby allowing it to turn over faster. Unfortunately, due to this early timing, the starting ability of these types of engines is poorer than the regular types. The "Barker" engine is a type that solves this problem by having its intake timing controlled by their patented "Manulmatic" valve which fundamentally allows for easy starting. After it is running, the valve allows for an early entrance of fuel into the crankcase which results in higher engine speeds and greater power.

Carburetion on the various engines also determines the maximum RPM an engine can turn over, the higher speed engines seem to be predominantly of the needle point in the hole type illustrated. This type allows for more gas to be drawn into the intake air stream than the needle valve mixing type, particularly at the higher engine speed.

All these features, when combined into

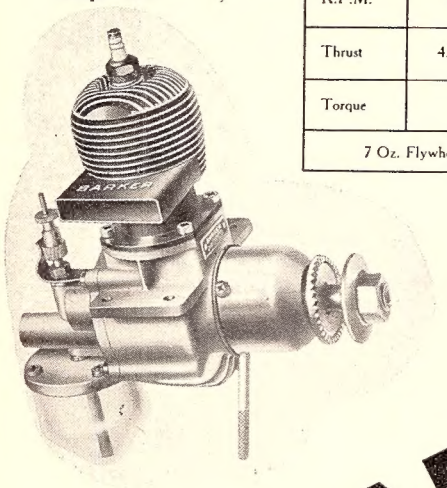
(*Text continued on page 17*)

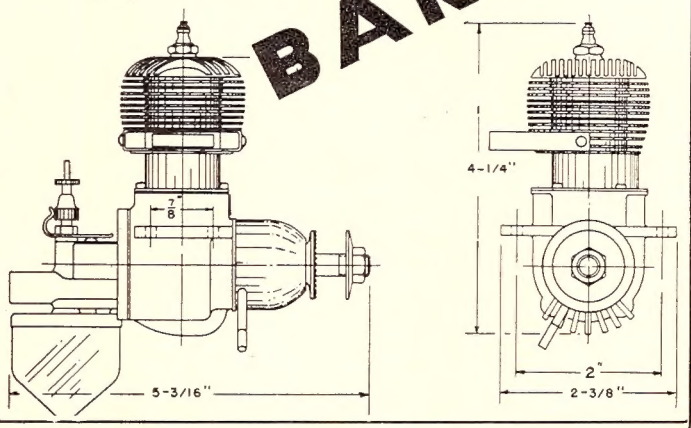
BARKER

Wt. 11.5 oz.

Disp. .60

Prop. Dia./Pit.	14/8	14/6	13/8
R.P.M.	4500	6700	5900
Thrust	4.1/4 lb.	4.5/8 lb.	4 lb.
Torque	3 oz.	3 oz.	3.1/16 oz.
7 Oz. Flywheel ..... 13,000 R.P.M.			



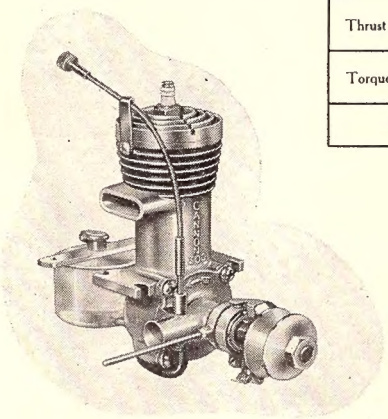


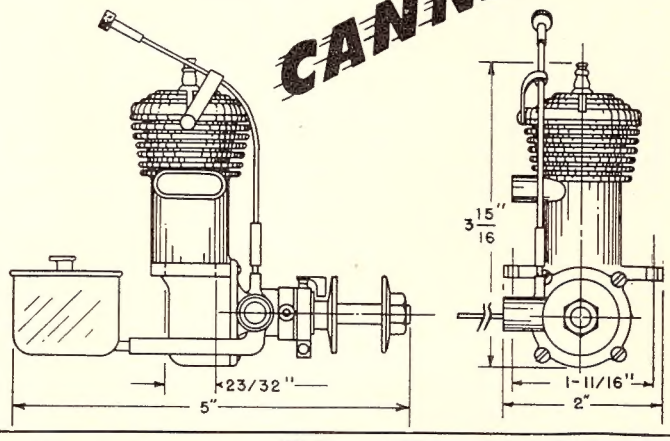
CANNON

Wt. 8.25 oz.

Disp. .358

Prop. Dia./Pit.	13/8	13/6
R.P.M.	4350	5750
Thrust	2.7/8 lb.	2.3/4 lb.
Torque	1.7/8 oz.	1.3/8 oz.
7 Oz. Flywheel.....11,500 R.P.M.		



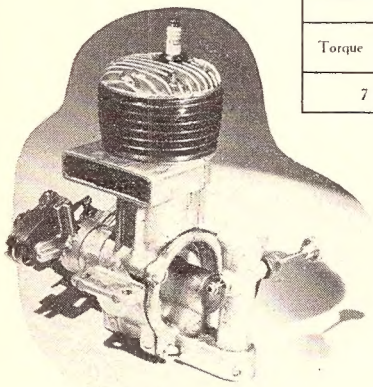


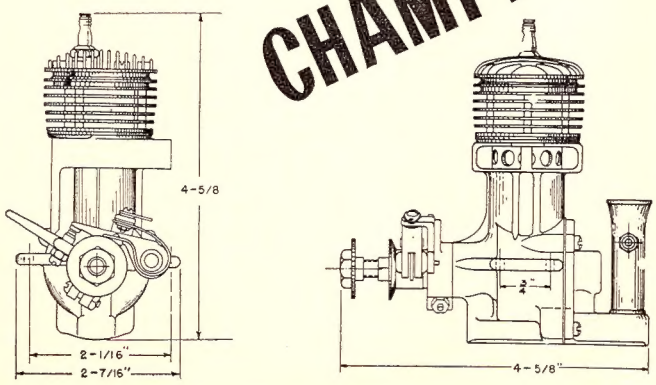
CHAMPION

Wt. 13.25 oz.

Disp. .60

Prop. Dia./Pit.	14/8	14/6	13/8	9/10
R.P.M.	4900	8000	6400	11,550
Thrust	4.9/16 lb.	5.3/8 lb.	4.3/16 lb.	——
Torque	3.1/2 oz.	3.1/2 oz.	3.1/8 oz.	——
7 Oz. Flywheel..... 14,400 R.P.M.				



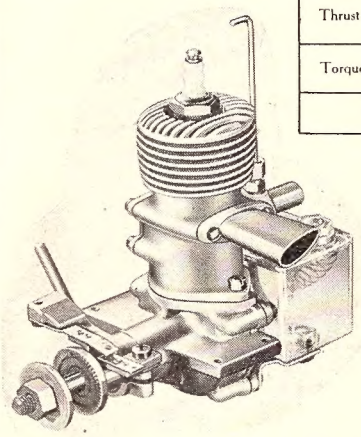


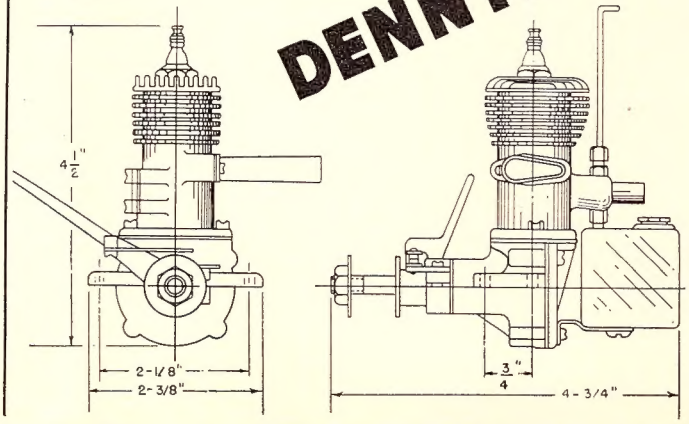
DENNYMITE

Wt. 11.75 oz.

Disp. .57

Prop Dia./Pit.	14/8	14/6	13/8
R.P.M	4450	6400	5000
Thrust	4.1/8 lb	4.3/8 lb.	3.3/4 lb.
Torque	3 oz	3 oz	2.3/4 oz.
7 Oz. Flywheel 14,000 R.P.M			



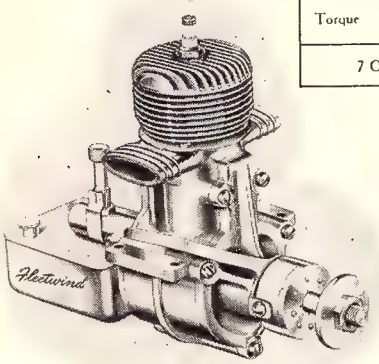


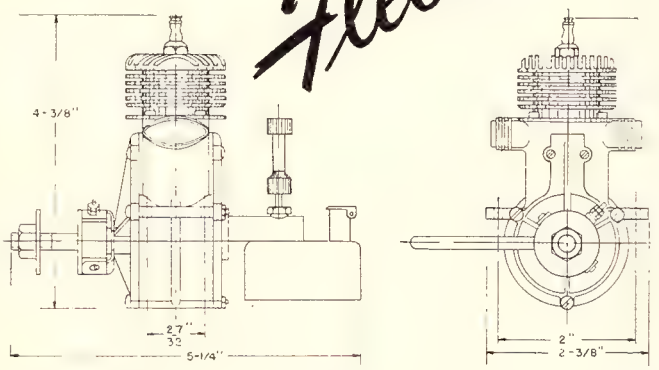
Fleetwind

Wt. 12 oz.

Disp. .60

Prop. Dia./Pit.	14/8	14/6	13/8
R.P.M.	4800	7300	6350
Thrust	4.1/2 lb.	5 lb.	4.1/8 lb.
Torque	3.1/4 oz.	3.1/8 oz.	3.1/8 oz.
7 Oz. Flywheel .		14,350 R.P.M.	



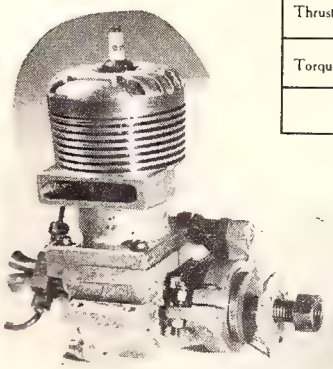


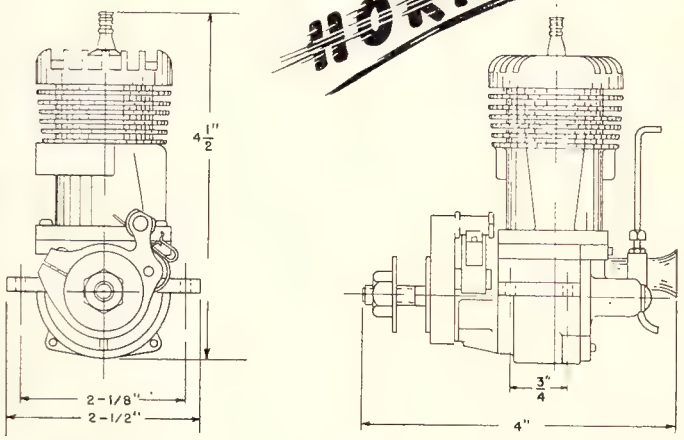
HORNET

Wt. 17 oz.

Disp. .604

Prop. Dia./Pit.	14/8	14/6	13/8	9/10
R.P.M.	5150	7800	7275	13,650
Thrust	4.3/4 lb.	5.1/4 lb.	4.1/2 lb.	—
Torque	3.1/2 oz.	3.1/2 oz.	3.1/2 oz.	—
7 Oz. Flywheel		14,750 R.P.M.		



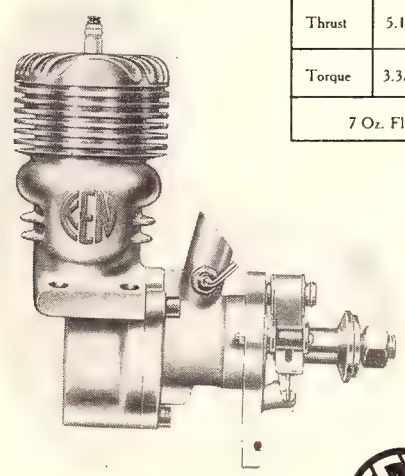


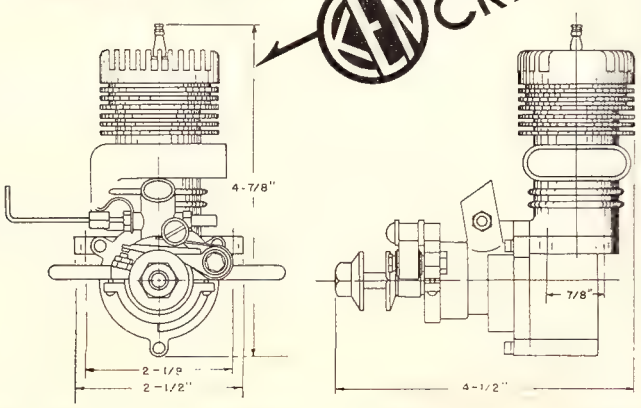
KEN CRAFT

Wt. 17.5 oz.

Disp. .604

Prop. Dia./Pit.	14/8	14/6	13/8	9/10
R.P.M.	5650	7900	7000	9700
Thrust	5.1/8 lb.	5.5/16 lb.	4.3/8 lb.	—
Torque	3.3/4 oz.	3.1/2 oz.	3.1/4 oz.	—
7 Oz. Flywheel .....13,700 R.P.M.				



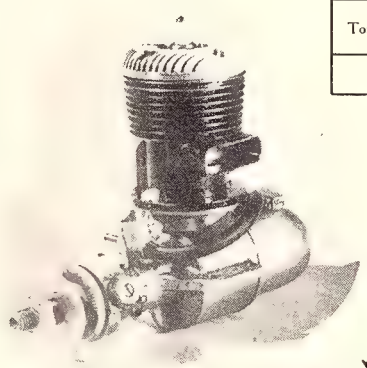


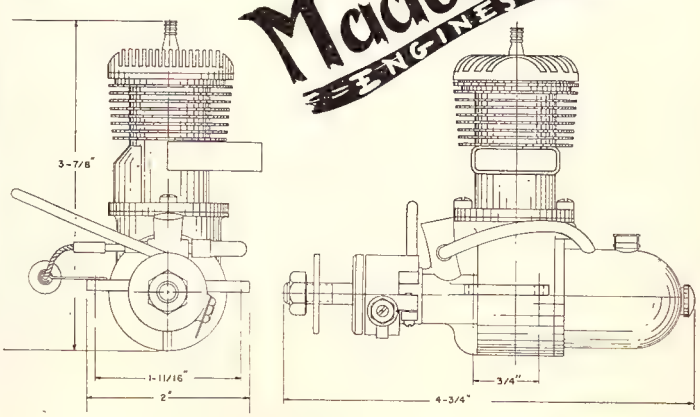
Madewell ENGINES

Wt. 9.25 oz.

Disp. .49

Prop. Dia./Pit.	13/8	13/6
R.P.M.	5000	7700
Thrust	3.3/4 lb.	3.3/8 lb.
Torque	2.3/4 oz.	2.1/2 oz.
7 Oz. Flywheel . . . . .14,000 R.P.M.		



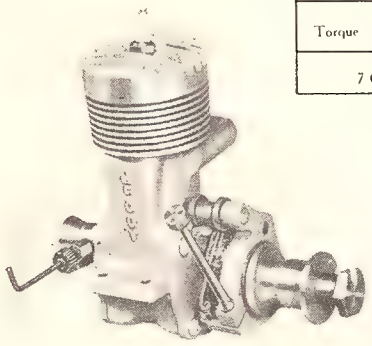


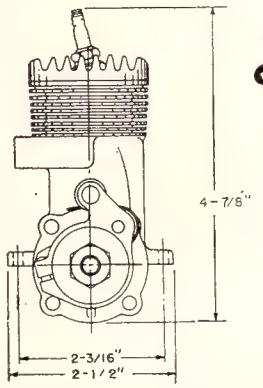
THE McCOY DURO-MATIC

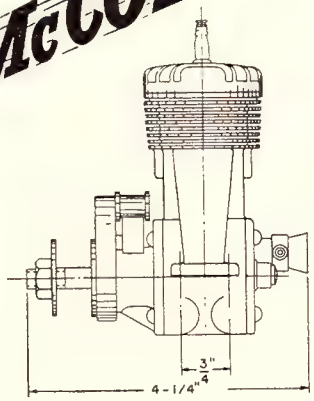
Wt. 17 oz.

Disp. .604

Prop Dia./Pit	14/8	14/6	13/8	9/10
R P.M	5200	7800	7300	14,050
Thrust	4.3/4 lb.	5.1/4 lb	4 1/2 lb	——
Torque	3.1/2 oz.	3.1/2 oz.	3.1/2 oz	——
7 Oz. Flywheel			15,000 R P.M.	





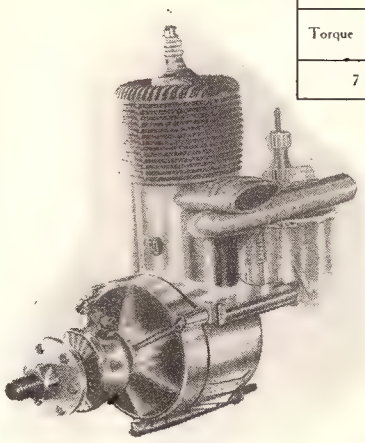


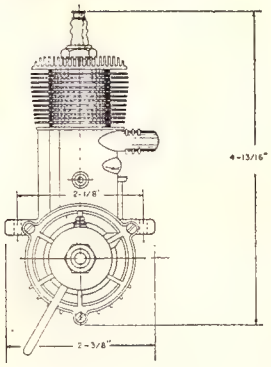
Ohlsson 60

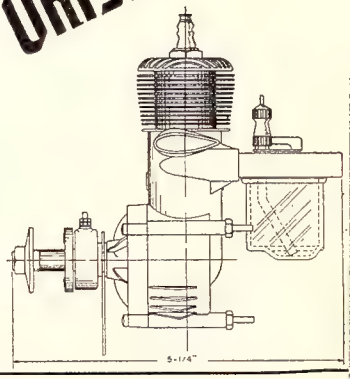
Wt. 11.25 oz.

Disp. .60

Prop. Dia./Pit.	14/8	14/6	13/8
R.P.M.	4550	7450	5500
Thrust	4.1/4 lb.	5.1/8 lb.	3.7/8 lb.
Torque	3.1/16 oz.	3.1/4 oz.	3 oz.
7 Oz. Flywheel... .		14,000 R.P.M.	





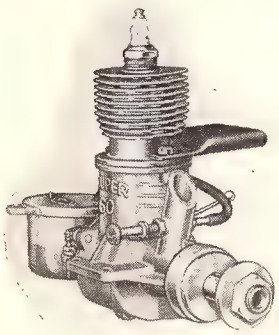


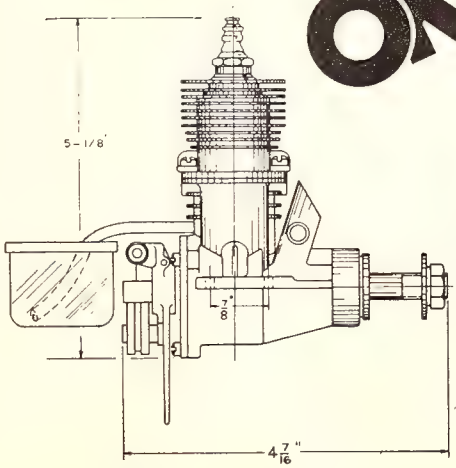
OK SUPER 60

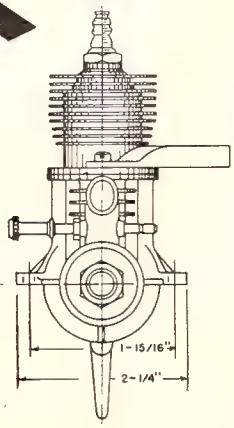
Wt. 13 oz.

Disp. .604

Prop. Dia./Pit.	14/8	14/6	13/8
R.P.M.	5250	6500	5500
Thrust	4.3/4 lb.	4.1/2 lb.	3.7/8 lb.
Torque	3.3/4 oz.	3.1/8 oz.	3.1/16 oz.
7 Oz. Flywheel		14,000 R.P.M.	





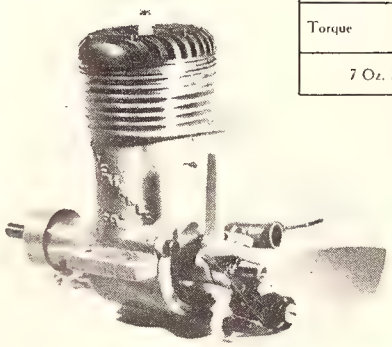


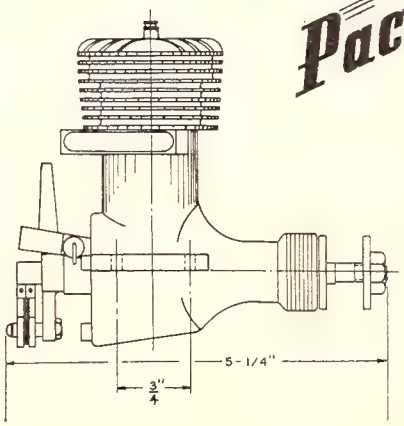
Pacemaker

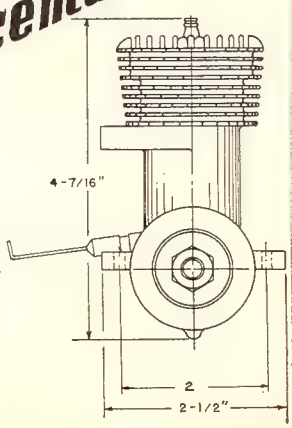
Wt. 15 oz.

Disp. .594

Prop. Dia./Pit.	14/8	14/6	13/8
R.P.M.	5100	7800	5500
Thrust	4.3/4 lb.	5.1/4 lb.	3.7/8 lb.
Torque	3.1/2 oz.	3.1/2 oz.	3 oz.
7 Oz. Flywheel ....14,150 R.P.M.			





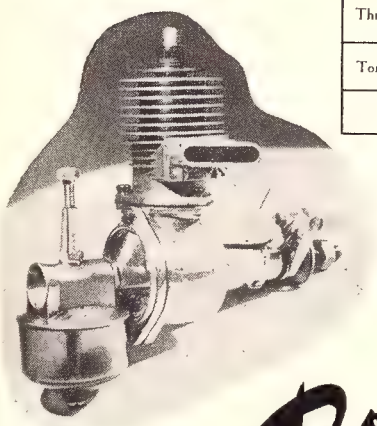


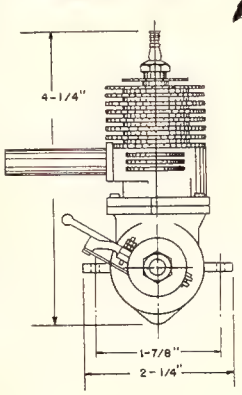
Rocket ENGINE

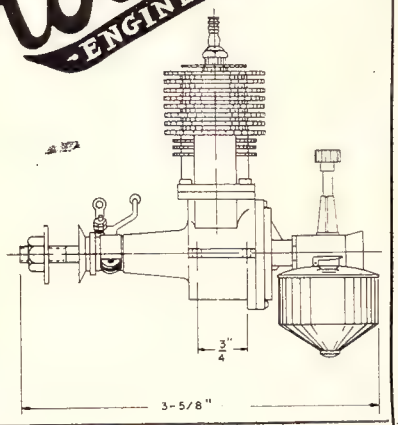
Wt. 10 oz.

Disp. .46

Prop. Dia./Pit.	13/8	13/6
R.P.M.	4500	6300
Thrust	3.3/8 lb.	2.5/8 lb.
Torque	2.1/4 oz.	1.5/8 oz.
7 Oz. Flywheel		13,200 R.P.M.





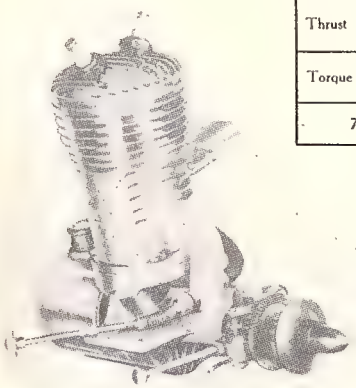


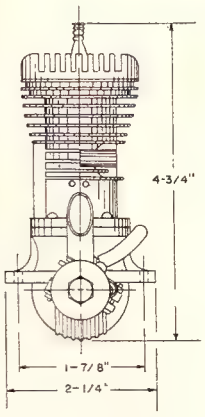
SUPER-CYCLONE

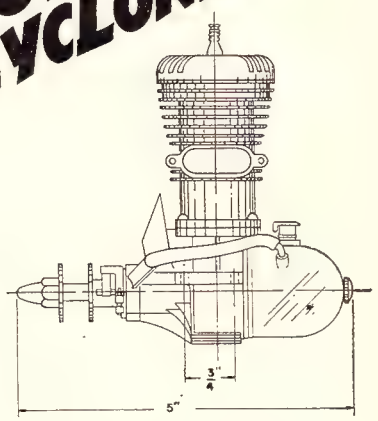
Wt. 9.5 oz.

Disp. .647

Prop. Dia./Pit.	14/8	14/6	13/8
R.P.M.	5000	7900	6350
Thrust	4.5/8 lb.	5.5/16 lb.	4.1/8 lb.
Torque	3.1/4 oz.	3.1/2 oz.	3 oz.
7 Oz. Flywheel			14,475 R.P.M.





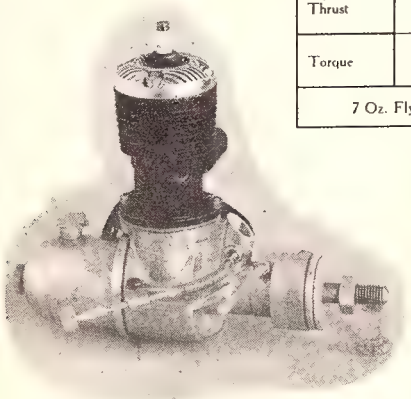


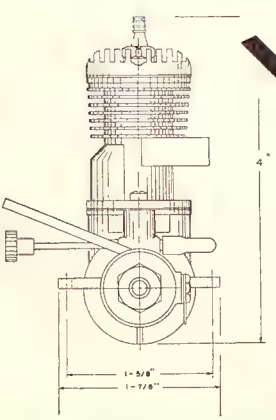
VIVELL

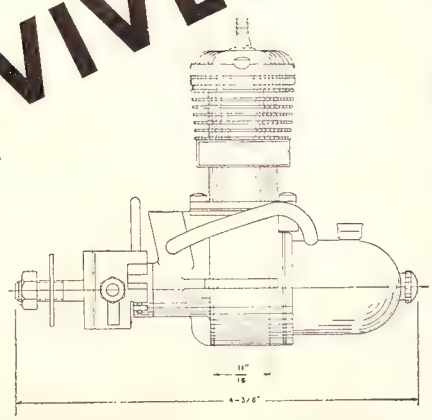
Wt. 8.12 oz.

Disp. .35

Prop. Dia./Pit.	13/8	13/6	12/6
R.P.M.	3600	6450	7150
Thrust	2.1/2 lb.	2.7/8 lb.	2.3/8 lb.
Torque	1.1/4 oz.	1.3/4 oz.	1.1/8 oz.
7 Oz. Flywheel			12,300 R.P.M.





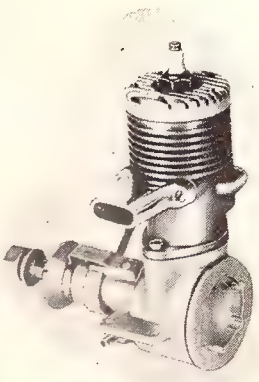


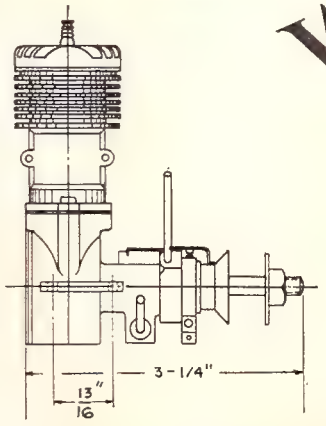
WENSEN

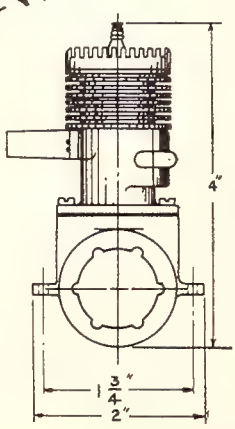
Wt. 9.25 oz.

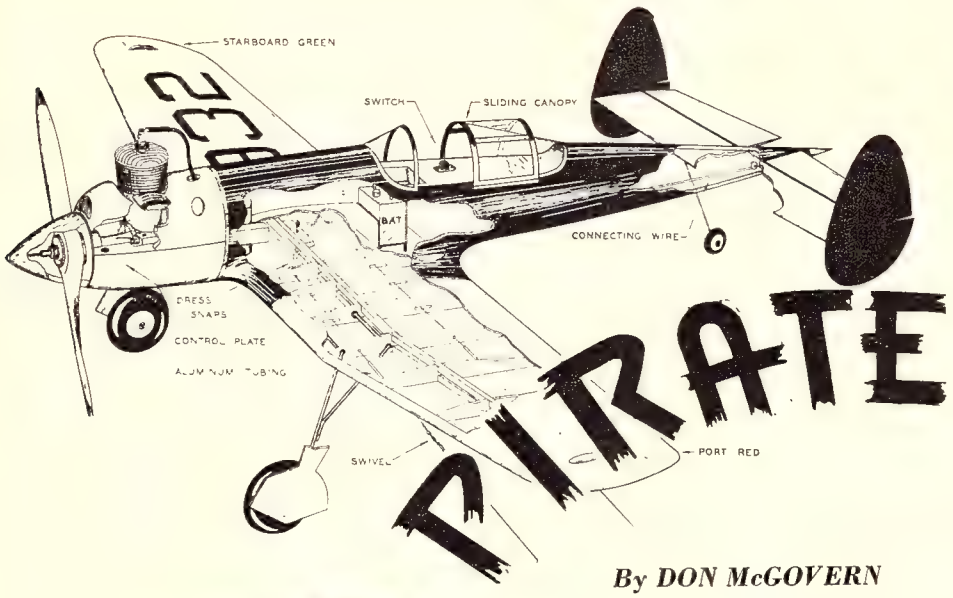
Disp. .362

Prop. Dia./Pit.	13/8	13/6	12/6
R.P.M.	3600	4800	5650
Thrust	2.1/2 lb.	2.5/8 lb.	2 lb.
Torque	1.1/4 oz.	1.3/16 oz.	1.3/8 oz.
7 Oz. Flywheel			12,250 R.P.M.

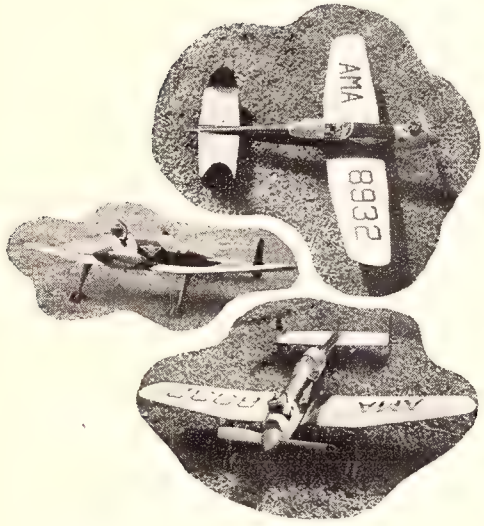








By DON McGOVERN



Photos by J. McGovern

A CONTROL line ship, to be a contest winner, requires the same skill to design and fly as a free flight model. With this in mind, I set out to design a ship which would really turn itself inside out as far an maneuverability was concerned. I wanted a ship that would be stable on the ground, and handle with ease in the air. In its first contest, the ship won first place in Stunt at Columbus, Ohio, June 1945. Since this time, the design has been greatly improved, the newest version shown here featuring controls in the wing, flying lights, more wing area, wider tread, cleaner lines with no external hooks or catches. A 3" movement of the control plate permits greatly increased movement of the elevators. This allows a large movement on the handle giving acute control of the ship and tremendous maneuverability. All told, the Pirate has been entered in four contests to date, taking 1st in Beauty, and one 1st and two 3rd places in Stunt. It has been clocked at 65 mph powered with a Forster "29".

The ship is constructed in one piece, permitting better streamlining through the generous use of fillets. As the wing and stabilizer cannot shift or change the incidence setting, the possibility of crashes is reduced. One piece construction also eliminates oil-soaked ignition. Only the cowling is removable, and a sliding canopy permits battery changes for both flight battery and flying lights battery pack.

Select several pieces of 1/20" or 1/16" sheet and glue them together to form the proper width of the wing. Build the center section first as this houses the control plate and landing gears. The two ribs which hold the gear are cut from 1/16" or 3/32" plywood with holes drilled as shown. If you intend to do any night flying, drill two additional holes in all ribs to carry the wires. Glue the leading edge, the lower spar and the trailing edge in place, and then the ribs in position.

The control plate is drawn full size and is made from 1/16" piano wire. Control plates such as this are foolproof and take only a short time to make. Do not use a wooden control plate as it will have to be bent later to clear the airfoil. Fasten the control wire extensions to the plate before installation. The plate pivots on a 1/16" wire held securely in place.

Before planking over the center section, install the landing gear which is done without removing the wing section from the plans. Slip each piece in place, protruding upward. Solder washers on either side of the plywood ribs to hold it in position. Later, the landing gear wire may be revolved 1/2 revolution to its correct position, and the joint bound and soldered. The outer panels are easier to construct with no landing gear or controls involved. The section on the inside of the circle should have a 1/8" warp built in to prevent banking in flight. Install two short lengths of aluminum tubing where the controls emerge from the wing. Since the controls travel through the wing for about 7", no external guide is necessary.

The stabilizer is built up in the conventional manner. The connection between the elevators is made from 1/16" wire bent and stuck into the balsa. This is better than wood for there is no tendency to warp and the horn is readily soldered to it. Hinges are made from strong grade crinoline, obtained from the back of "Band-aids."

For the fuselage, select a block of balsa and saw it in two pieces. This eliminates facing the two surfaces, since they are already mated. Tack them together with a few drops of glue and start hacking. First cut them to size in the side view, then repeat for the top. Cardboard templates of the cross sections will simplify the carving.

After cutting it down to proper contour, sand with a fairly rough grade paper. The ship will be sanded again later so do not try for a super job yet. Cut the two pieces apart and mark off the wood to be removed. The hollowing is best done by a fairly small gouge. A 1/8" shell toward the rear is quite sufficient, increasing slightly toward the nose of the ship.

Cut away notches for motor mounts, width depending on the lugs of your motor. With all excess wood removed, sand smooth and coat inside of fuselage halves with clear dope.

Before gluing the mounts in place, drill four engine mounting holes and cut two strips of metal from a tin can. Punch two holes in each, properly located, and solder the bolt heads to them. The bolts are then slipped through the mounts, the engine then being mounted on the studs and held down with the nuts instead of the bolt heads. A second nut slipped over the first, forms a lock nut, preventing the engine from coming loose.

With the mounts glued in place, invert the lower half of the fuselage and place it on a flat surface. With a knife, carefully cut away the fuselage to receive the wing section. Measure the distance from trailing and leading edge of the wing to the table to insure a 0 degree incidence setting. When satisfied, glue wing in place.

A piece of 1/16" wire forms the linkage between the elevator horn and control plate with washers soldered on each end for the bearings. Keep the wire low to prevent interference with flight batteries. Check controls for proper movement and adjust accordingly. Use 40-45° *up* movement and 12 to 15° *down*. More movement may be obtained by shortening elevator horn. Put a drop of oil on connections and glue tail in place at 0° setting.

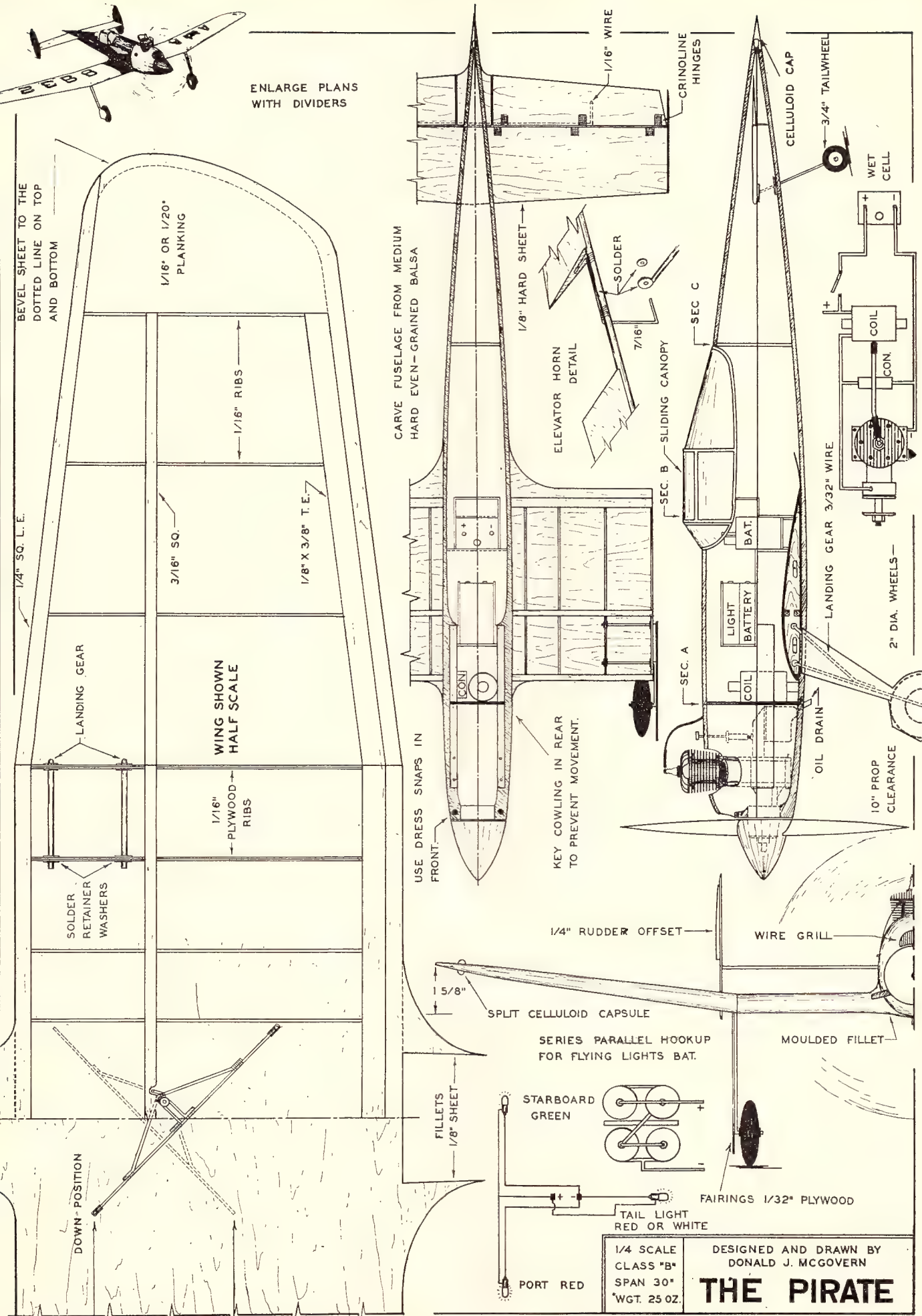
Run tail wheel wire up through stabilizer, bend over and cement to prevent swivelling.

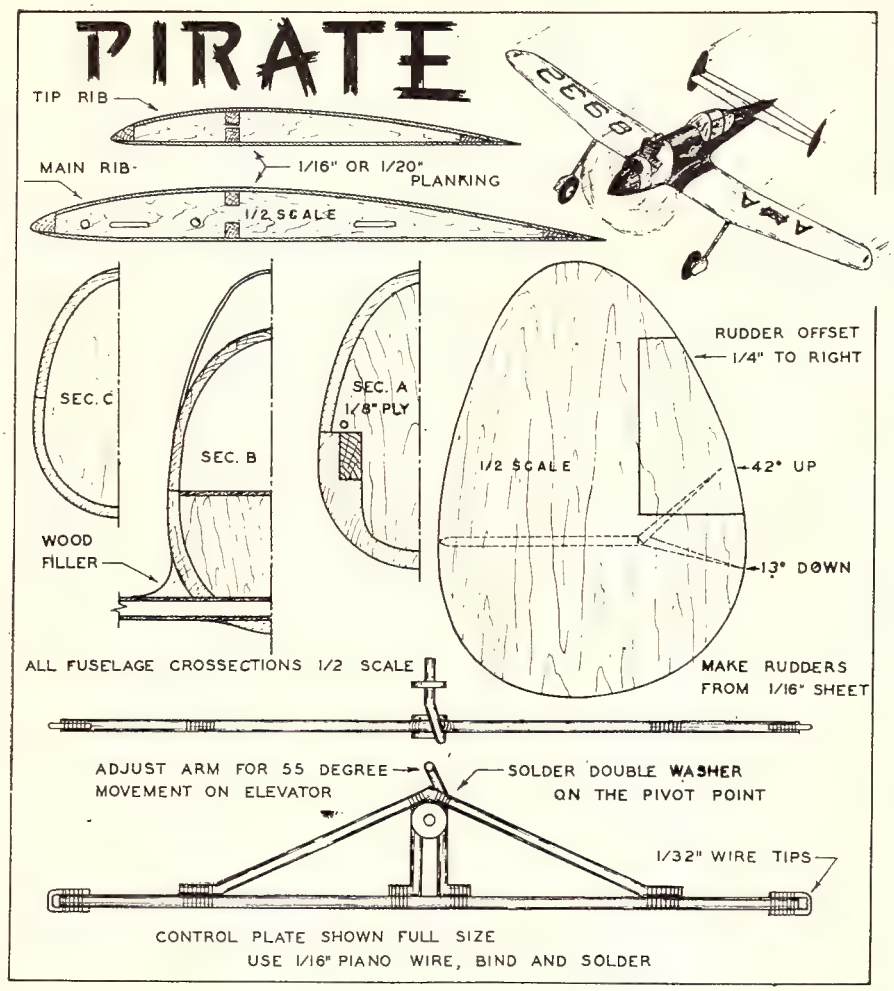
Solder all ignition connections and keep wires as short as possible. Batteries supplying voltage to wing and tail lights are inserted through open canopy when ignition batteries are removed. Use a separate cut-off switch for each circuit.

Use plenty of glue when joining fuselage sections, binding with rubber bands for a tight fit. While this is drying, cut holes for motor installation in cowling. The grill is made by pushing pins with heads cut off, through the balsa. Two dress snaps hold the cowling in place.

Spinner is cut from balsa, and with a little care can be hand cut if an electric motor or lathe is not available. Cut a round plywood disk to fit behind the prop as this will help spinner run true. A 3/32" bolt fitting into an adapter holds spinner in place.

Canopy is made in three sections, the windshield and rear sections being stationary. These are glued in position first, a wire reinforcement holding the shape.


ENLARGE PLANS WITH DIVIDERS
BEVEL SHEET TO THE DOTTED LINE ON TOP AND BOTTOM
1/16" OR 1/20" PLANKING
1/16" RIBS
3/16" SQ.
1/8" X 3/8" T.E.
1/4" SQ. L.E.
LANDING GEAR
WING SHOWN HALF SCALE
1/16" PLYWOOD RIBS
SOLDER RETAINER WASHERS
DOWN-POSITION
CARVE FUSELAGE FROM MEDIUM HARD EVEN-GRAINED BALSA
1/16" WIRE
CRINOLINE HINGES
1/8" HARD SHEET
SOLDER
7/16"
ELEVATOR HORN DETAIL
SEC C
SEC. B
SLIDING CANOPY
SEC. A
CELLULOID CAP
3/4" TAILWHEEL
WET CELL
COIL
CON.
BAT.
LIGHT BATTERY
LANDING GEAR 3/32" WIRE
2" DIA. WHEELS
OIL DRAIN
10" PROP CLEARANCE
USE DRESS SNAPS IN FRONT
KEY COWLING IN REAR TO PREVENT MOVEMENT.
1/4" RUDDER OFFSET
WIRE GRILL
1 5/8"
SPLIT CELLULOID CAPSULE
SERIES PARALLEL HOOKUP FOR FLYING LIGHTS BAT.
MOULDED FILLET
FILLETS 1/8" SHEET
STARBOARD GREEN
FAIRINGS 1/32" PLYWOOD
TAIL LIGHT RED OR WHITE
PORT RED
1/4 SCALE
CLASS "B"
SPAN 30"
WGT. 25 OZ.
DESIGNED AND DRAWN BY DONALD J. MCGOVERN
THE PIRATE



Use a heavy grade of celluloid. Sliding canopy is made of a rectangular piece of celluloid, with a strip af aluminum tubing on each end. Two wire tracks, running along the side of the fuselage, complete the sliding canopy.

The fillets on wing and stabilizer are formed from commercial wood filler, moulded to shape. Sand the plane all over before finishing the ship. Use several coats of talcum powder and dope as a wood filler. If preferred, cover entire ship with white silkspan. Paint ship with dope of good lacquer, adding any artistic embellishments of your own.

The Pirate will react quickly to any movement with a good engine in it, so do not over control. It's an easy ship to fly and not over-sensitive due to the large handle movement.

A word about night flying—If you are worried about it, stick a temporary bright light in the cabin. Choose a calm dark night and a smooth field. If you have had much stick time on control lines and can land them well, no ground lights are necessary and safe landings are easily made.

CLEVELAND BOYS BATTLE HIGH WINDS

ON SUNDAY, July 14th, Red's Hobbycraft Shop of Cleveland sponsored their first post-war meet. Known as Red's Sesqui Model Airplane Meet, and sanctioned by the A.M.A., the meet drew contestants from Chicago to Pittsburgh. High winds and tall trees failed to dampen the enthusiasm of these modelers. One hundred and sixty contestants flying more than two hundred and fifty planes participated in the five scheduled events. Due to the poor flying conditions, the average times were low.

The Grand Meet Champion was Bill Lenert, of Sylvania, Ohio, who won a trophy and three motors.

The Cleveland Champion and winner of the Lt. Vodra Wolfe Memorial Trophy (perpetual) was Dick Korda.

The Junior Meet Champion was Jack Tischler, and the Cleveland Balsa Butchers were the champion club.

CLASS A—Gas
1, N. Getzloff, Cleveland; 2, J. Stalnaker, Akron; 3, R. Looft, Cleveland.

CLASS B—Gas
1, B. Lenert, Sylvania, Ohio; 2, D. Korda, Cleveland; 3, J. Tischler, Cleveland.

CLASS C—Gas
1, A. Murray, Cleveland; 2, L. Torno, Cleveland; 3, H. Haigh, Dearborn, Mich.

RUBBER POWERED
1, G. Reich, Cleveland; 2, W. Fromm, Chicago; 3, M. Basta, Cleveland.

TOW LINE GLIDER
1, C. Lanzo, Cleveland; 2, W. Lenert, Sylvania, Ohio; 3, D. Korda, Cleveland.

CLEAR DOPE from A. M. A.

Al Lewis

WASHINGTON, D. C. At the year's half way mark, a survey has shown that the Academy has embarked upon more than half of this year's program. Briefly, here's the dope that's going on in Model Aviation in general, and the A. M. A. in particular.

The first step taken was to lift the wartime restrictions imposed on gas modeling. During the war, flights were limited to ten minutes, and each contestant was limited to one entry. Now that conditions are returning to normal, both of these wartime restrictions were removed.

In the interests of safety, hand-launching of rise-off-ground gas jobs is now permitted. This change was necessary because of the appearance of many novices, and the lack of uniform runways. As a result, fewer accidents have occurred.

The A. M. A. has instituted a National Roster of aeromodeling groups. To date, the names and addresses of 500 active clubs of all types have been received. This list has been publicized and sent to each club so that announcements of meets and organizational chatter might be exchanged.

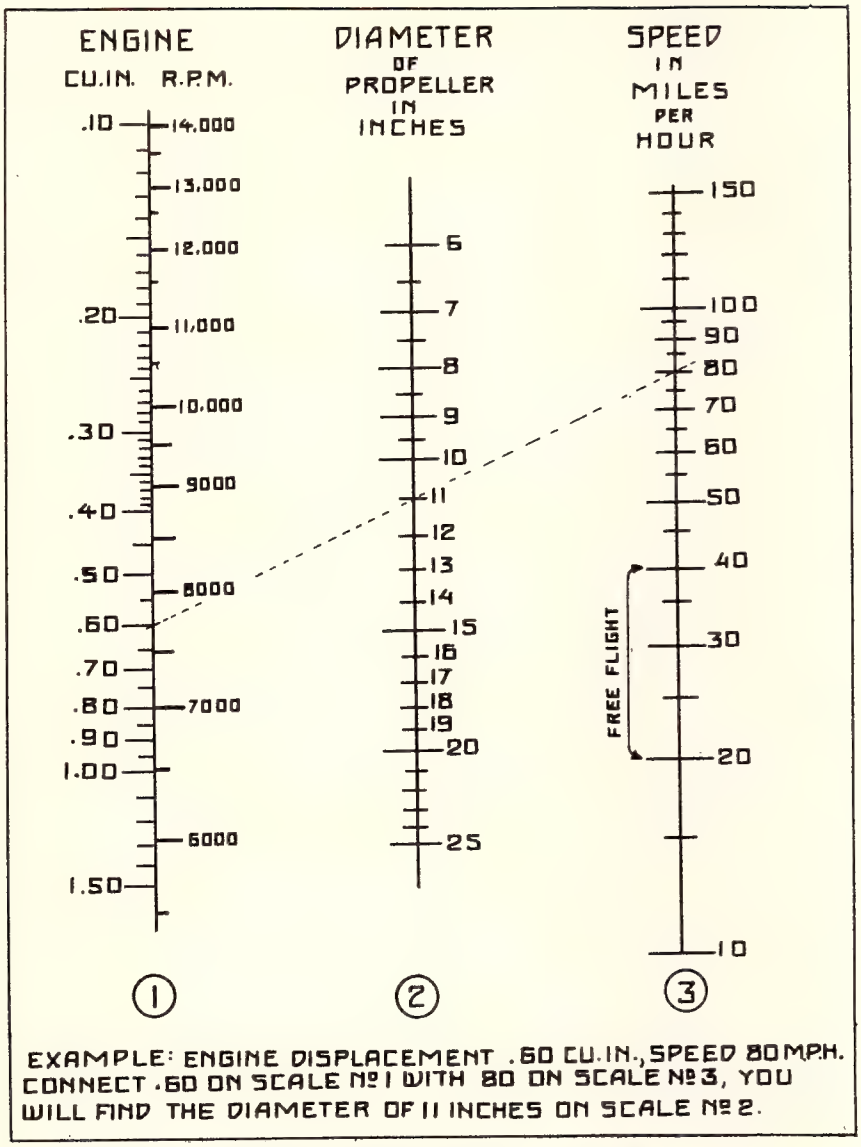
Now underway is a plan to set up official license stations at leading hobby stores throughout the country. If the plan succeeds, the A. M. A. model flying license may be purchased over the counter at no extra charge. The first test station was established at "The Hangar," Boston, Mass.

Official recognition has been given to various councils set up on a city and state-wide basis throughout the country. Among those hard at work setting up contest dates and exchanging ideas and programs are the Mid-States Model Aeronautical Assn., the Tri-State council in the Pittsburgh area, the Metropolitan Model Airplane Council in New York City, and the Dealers associations in Philadelphia, Southern and Northern Ohio, and Chicago.

An international "Academy" has been set up to exchange information, material and ideas. This organization is entitled the International Society of Aeromodeling Engineers, with the executive director of the A. M. A. temporarily acting as secretary-general. A number of conferences have been held to date with air attaches of foreign countries.

All told, the Academy has under way more than a dozen such projects in addition to the work performed by its various committees on a volunteer basis. Besides the contest board and the executive council, there is a technical committee, a safety committee, an air age committee, an international contest committee, an indoor and outdoor committee, a woman's activity committee, and so on.

Yep, we're plenty busy these days!



DIAMETER OF GAS PROPS

by R. J. Hoffman

MOST model builders stay away from estimating the design of a propeller, not for the reason of mathematics but for the lack of a reliable data on power output of engines at various speeds. Most manufacturers give only approximate power output instead of the speed at which the maximum power is delivered.

In order to develop a simple equation for estimating the diameter and the pitch of the propeller a few assumptions will be made. These assumptions are that the piston speeds for all engines at maximum power delivery and that the power output for unit displacement should be the same and that engine designs are similar.

From above assumptions the revolutions per minute will be equal to 6500/cu. in. ⅓, and the horse power equal to .70 cu. in.⅔. The constants for above equations were derived from tests conducted with a few engines having average compression ratios.

The standard equation propeller diameters for large airplanes is D = 300 [h.p./(r.p.m.^{2} x V)]¼ in which D denotes the diameter in feet, V the velocity of the airplane in m.p.h. The velocity is the maximum speed the airplane can fly with the power supplied.

Using above equation and substituting h.p. and r.p.m. by displacement units the propeller diameter in inches for small gas model engines will be equal to 39 cu. in.⅓/V¼. For approximate pitch estimate, following equation will be:

Pitch in inches = 1056 V/RPM.

The r.p.m. is taken from the scale for engine displacement.

For ready estimate of gas model propellers a nomograph is appended. Just lay a straight edge across known values of displacement and flying speed obtainable by the design and read the diameter of the propeller in inches on the center scale.

INSTITUTE OF AIR AGE ACTIVITIES TO SPONSOR FUTURE NATIONALS

THE Institute of Air Age Activities, a non-profit agency created to stimulate and encourage model airplane building and flying through an agreement with the A.M.A. plans to conduct a new program of model airplane activity which will be welcomed by most model builders. The program outlined by the organization plans to extend model aero activities through the following means: 1—Development of more clubs and adequate sponsoring groups and providing assistance to such groups. 2—Preparation of club and contest aids to assist model building groups and sponsors. 3—Encouragement and sponsorship for model aviation contests on local, state, regional and national scale. 4—Establishment of model plane "airports" throughout the country. 5—Stressing model plane building as an educational and anti-juvenile delinquency hobby in schools and youth organizations through means of lectures, films, demonstrations and literature.

The I.A.A.A. program will not conflict with already established meets such as the traditional contests held in the different regions in the country. This program will instead sponsor the different state and regional meets which will be an elimination for the BIG event of the year—the NATIONALS. This indeed should solve the perplexing problem of having 1,500 contestants at a National meet, with 750 of them local competitors.

A contest committee to develop and administer the I.A.A.A. plan will be created and composed of experienced National Meet personnel, A.M.A. model experts and similar individuals. The program, when under way, should really help place Model Aviation in the position it rightfully deserves!

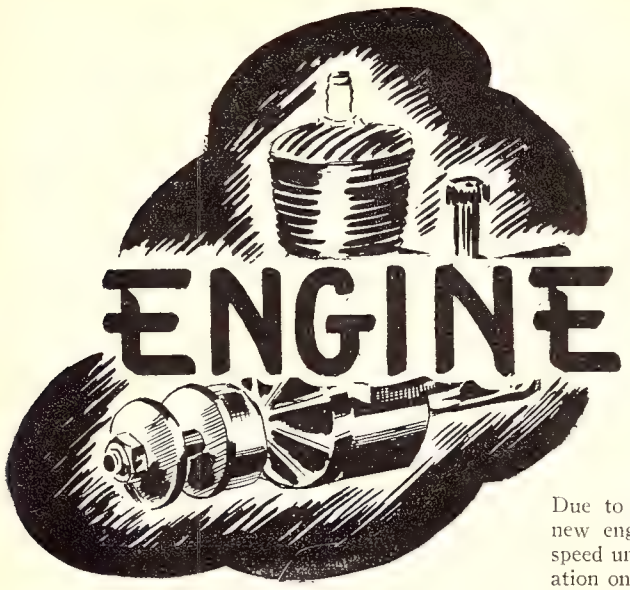
YOUR ENGINES

(*Continued from page 9*)

the proper degree, determine the best performance of the engine. The extent of these features are carried out as shown in the readings included in the survey.

In order to get the maximum value out of this survey, the model airplane designer, builder, and flyer should study these findings. It will show him which engines are more suitable for his needs. If he wants an engine which will be working under a great load, then an engine that delivers more RPM, thrust and torque with the larger propellers is desirable. If the engine is to be used where it is under a light load and higher RPM (as in control line speed models), then an engine which turns up much higher RPM's with the smaller propeller should be used. This survey not only shows the displacement of each engine but also its weight. This weight sometimes is a great factor in model design and should be considered. The survey also shows how much thrust various diameter and pitch propellers deliver at different RPM's and

(*Continued on page 56*)



MAINTENANCE AND OPERATION

By WILLIS L. NYE

THE maintenance and care given a model airplane engine during its use controls the satisfactory operation of it without undertaking frequent overhaul. The initial investment ranges from ten to thirty-five dollars for most engines, and it is vitally important that this investment be protected. There are many items of maintenance not described in the instructions given to the buyer at the time of purchase. This knowledge comes from operation alone. Certain items will be discussed here, however, which the novice may use to advantage.

TRIAL OPERATION & BLOCK TESTING: Each engine received from the manufacturer has been carefully block tested, and is usually guaranteed to perform satisfactorily for a specific duration of time, provided the purchaser has not disassembled the engine. The engine is also to be run in accordance with the instructions and recommendation for proper fuel. Under no circumstances, should the purchaser find it necessary to disassemble an engine prior to performing the initial block test on the workbench.

Carefully remove the loose components of the engine and place them on the bench. A shallow tray or clean cloth should be used for these parts to prevent loss. Assemble these loose parts in accordance with manufacturer's instructions.

The needle valve assembly is a delicate precision part. Use care in installing the needle valve into the valve seat to prevent damage to the fine screw threads or shank. *Do not apply excess force during this installation!* Force will only bend the shank of the needle or dull the point. When this is completed, the engine is ready for oiling prior to actual operation on the test block.

OPERATION OF A NEW ENGINE: On new engines, all reciprocating parts are fitted to minimum operational tolerances. The initial engine test operation should therefore be limited to one or two minutes. Once the engine has cooled, test runs ranging from three to five minutes may be made.

Engine R.P.M. can be controlled by operation of the needle valve, therefore use caution in making the initial setting. Due to close operational tolerances, the new engine cannot be run at maximum speed until after at least an hour of operation on normal fuel at moderate speed.

The temperature of the cylinder head may reach as much as 500° Fahrenheit during nomal bench operation. To prevent the possibility of the piston seizing in the cylinder due to excess heat, all reciprocating parts should be given a bath of S. A. E. 70 oil or equivalent.

When the engine is ready to run on the test block, it is important that the assembly of the fuel tank, condenser, coil and batteries is similar to that used in the model airplane. Make certain the engine is securely attached to the wooden engine bearers by means of filister head screws. Refer to Fig. 1 for an example of a satisfactory engine test block, using sponge rubber to absorb engine vibration.

FILLING THE FUEL TANK: Since gasoline is highly inflammable, use reasonable care in handling the fuel when filling the tank. Filter paper is recommended to be used on the fuel prior to use, and be certain the fuel is obtained from a closed container. If any fuel is spilled during the filling operations, dry the spilled fuel quickly. Do not start the engine until all spilled fuel has evaporated. Remove any other inflammable material from the close proximity of the engine. Provide ventilation for the room where the engine test run is to be performed. Engine exhaust gases are injurious to breathe.

ENGINE STARTING IN COLD CONDITION: Any new, reconditioned engine or one which has not been operated for several days may be started in the following manner: (a) Check to see if propeller nut is secure. (b) Set needle valve in "Closed" position. (c) Check to make certain the strength of electrical ignition spark is sufficient for proper operation. Hold spark plug wire approximately 3/16" from cylinder head. When prop is rotated with fast snapping motion, a high tension spark should jump across the gap between high tension lead and cylinder head. (d) Open needle valve about 2¾ turns. This "Open" position setting may vary with different types of engines. (e) Place engine ignition switch in "Closed" position. (f) Set the spark adjustment in "Starting" position. (g) Hold engine mount with left hand, using right hand to achieve fast snapping motion for rotation of prop. (h) Alternately prime engine during prop rotation. This may be done by placing forefinger over opening of air intake. Rotation of engine crankshaft will cause raw fuel to be drawn into combustion chamber of the cylinder. (i) Prime engine with fuel once or twice if necessary. (j) Crank engine through complete revolution by giving prop a fast snapping motion. (k) If engine is in proper operating condition, it should start quickly, or at best, after two or three attempts. (l) After engine has started, control the operating speed by setting the needle valve.

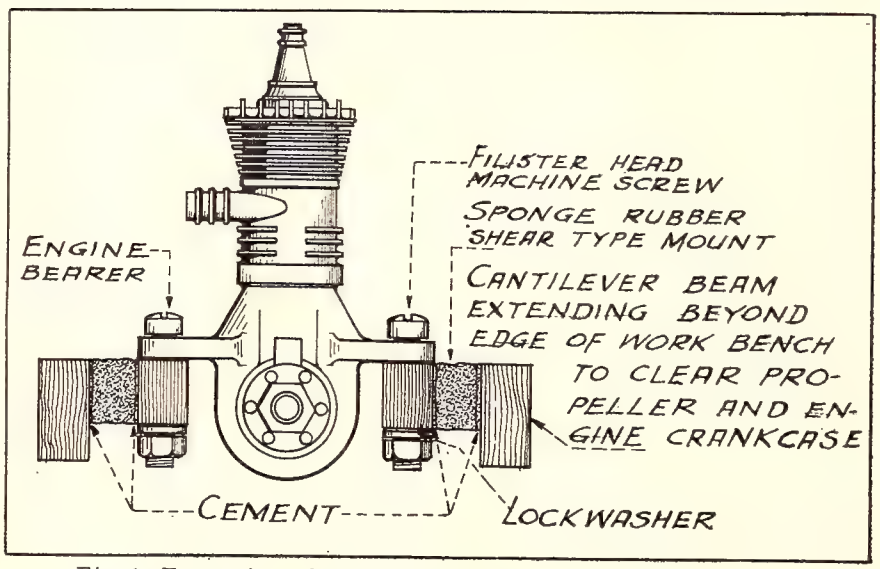

FILISTER HEAD MACHINE SCREW
SPONGE RUBBER SHEAR TYPE MOUNT
ENGINE-BEARER
CANTILEVER BEAM EXTENDING BEYOND EDGE OF WORK BENCH TO CLEAR PROPELLER AND ENGINE CRANKCASE
CEMENT
LOCKWASHER

Fig. 1. Front view of bench type vibration absorbing test block.

On some engines, it may be necessary to alternately prime the engine with fuel several times before starting is accomplished. This may be done by alternately opening and closing the air intake opening during the rotation of the prop.

ENGINE STARTING IN WARM CONDITION: Here the sequence of operations is different than starting a cold engine. If excess priming with fuel is done, the engine may be flooded with raw gasoline and must be cleaned of fumes. If the engine has been running previously, it will not require any priming if the cylinder is still warm. (a) Set the spark in "Starting" position. (b) Set needle valve for normal operation. (c) Rotate prop with fast snapping motion. (d) If engine does not start, prime with fuel only once. If it still does not start after the second attempt, repeat operation after engine has been idle for five minutes.

FLOODING ENGINE WITH FUEL: Frequently, in the course of test block operation, the engine may become flooded with excess fuel caused by several priming operations. Should this happen, raw gasoline will spew out of the engine exhaust manifold when the propeller is being rotated. When the engine is flooded, it will be necessary to remove spark plug and rotate prop until all evidence of residual gasoline fumes has been removed. Examine and clean spark plug electrodes, replace plug and then attempt another starting operation.

EXTERIOR PRIMING: On engines which have a rotary air intake valve, priming may be done by allowing a drop or two of raw fuel to be injected into the air intake. This should be done with an eye dropper. Where the outside temperature is low, a rag saturated with ether may be held in close proximity to the air intake to assist in priming. Ether is suggested not because it is a suitable fuel, but primarily because it is highly volatile.

NEEDLE VALVE ADJUSTMENT: After engine is running, the speed can be controlled by setting the needle valve. The needle may be screwed in or out as desired to control the amount of fuel being drawn into the combustion chamber of the cylinder. Fine adjustment is made by screwing the needle in or out to control the fuel-air mixture, and at the same time adjusting the setting of the spark.

Again it is emphasized that the needle valve is a very delicate component and may be seriously damaged by any improper adjustment during handling. Because the setting is very precise, some advantage may be gained by the attachment of a plastic knob approximately one inch in diameter. Where very fine control of the fuel-air mixture is necessary, the needle shank may be honed to accomplish this action. Unfortunately, the trial and error method is the only way to obtain this action. Results will justify the expenditure of both time and effort. If the needle must be cleaned, dip it in cleaning solvent or clear gasoline and polish it with steel wool. Make certain no trace of steel wool fibers remain attached to the surface.

RAM AIR INTAKES: Occasionally, attempts have been made to achieve an increase in engine power by means of a ram type air intake. This means to increase power is not practical on present type of two cycle engines, primarily because of the coarse fuel-air mixture and low air speeds.

COMPRESSION RATIOS: Two cycle, internal combustion engines do not develop high compression of the combustible fuel charge. However, because of the low compression, any loss of compression results in a large reduction in engine output. Where possible, therefore, compression in pounds per square inch may be checked by means of an air pressure gauge. Fig. 2.

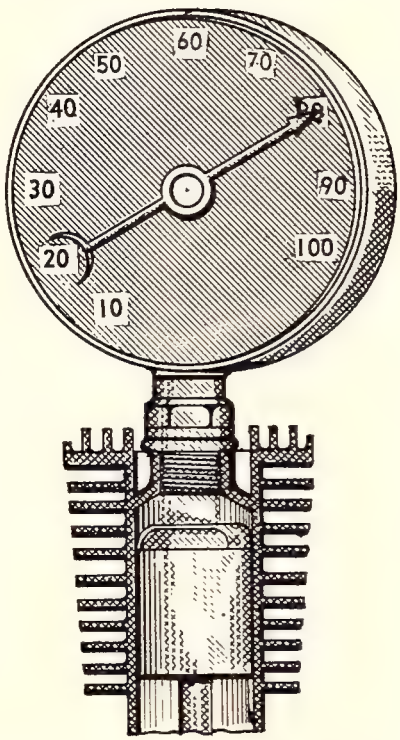


Fig. 2. Suggestion for testing the compression of an engine.

Where a cylinder has been worn evenly, but the working tolerances are excessive and cause a loss in engine output, such a difference in tolerance may be reduced by having the piston hard chrome plated. This plating of the piston, while limited in the ultimate result, will improve the operation of a worn piston.

Only by the use of a proper fuel can maximum power be obtained in order to produce propeller thrust effort. While several special high powered fuels are available for use in engines, it is not recommended that ethyl, aviation, or so-called high-test gasoline be used. In general, these fuels will not produce satisfactory results during operation in engines of low compression ratio.

FUEL MIXTURE: Three parts of low octane clear gasoline when thoroughly mixed with one part of S.A.E. 70 lubricating oil or equivalent makes a suitable fuel mixture. When mixing the fuel, be certain that the oil and gasoline are well mixed in a clean container. Before pouring the mixture in the fuel tank, be certain the fuel has been filtered of all residue or sludge. Filter paper may be used as a screen. Pour the fuel slowly into the tank to permit the residual air to escape and also to prevent the formation of air bubbles.

DILUTION OF FUEL: Commercial lacquer thinner may be used as a diluent should this be necessary if the engine during operation tends to be sluggish in acceleration. Sluggish operation is caused by an incomplete fuel mixture. Ether may also be used as a diluent or even as a component of the mixture. Ether tends to clog the engine and may not improve the engine output. Try to obtain good engine operation without the use of ether or thinner in the fuel mixture in order to preclude the necessity for frequent cleaning and disassembly of the engine. Ten drops of thinner added to a tank of fuel is usually the proper mixture for good results if the engine seems sluggish.

SPECIAL HIGH B.T.U. FUELS: Before using any of the special fuel mixtures which are for sale, check to see if the use of this kind of fuel will cause the engine to overheat during normal operation. In some cases, high B.T.U. fuels will cause a seizure of the piston within the cylinder during prolonged operation. The user of a high octane fuel should remember that no piston rings are fitted to the pistons and the necessary compression is obtained by means of a close fit between the piston and the cylinder walls. Any excess heat caused by the use of these "hot" fuels may lead to seizure within the cylinder unless adequate cooling is possible. When using these fuels, try to limit the duration of operation and be certain the engine is disassembled and cleaned.

When using any kind of special fuel blend, the ratio of three parts of gasoline to one part of oil is proper. However, do not use ether, chloroform, picric acid or any other fuel component in a lesser ratio. Idling characteristics will not be satisfactory with these blends of fuel.

No engine can produce more thrust effort than allowed by the type propeller used. Prop sizes for use with many of the conventional types of engines range from 8 to 14 inches in diameter, with the pitch ranging from 4½ to 10 inches. In general, best results with a specific engine will be obtained with the size and type propeller recommended by the engine manufacturer, or by close study of the engine survey in both last month and this month's MC. This will permit the maximum thrust for the designed R.P.M. In short, the matching of the engine-propeller combination is one of the secrets in obtaining maximum performance in model airplane competition.

Every engine should be maintained in proper running condition in order to obtain the maximum performance. Engine maintenance will entail the cleaning and disassembly of the engine periodically, and the replacement of any worn parts. Only by proper maintenance will top performance prove consistent.

ELECTRICAL SYSTEM: The use of an electrical spark to ignite the fuel charge within the cylinder is similar to full-size engines. Engine output is a function of the efficiency of the electrical system, and consequently, weak batteries or low resistance insulation which permits the short circuiting of electrical

energy is not desirable.

IGNITION COIL: The coil must generate sufficient high voltage electrical energy to jump a gap of 3/16" spacing between electrodes. This high voltage must be generated by use of two standard flashlight cells, or wet type cells designed for use with model airplane engines.

The coil should be attached securely to an insulated base and so assembled that it will not loosen when subjected to engine vibration during flight. While the flight operation must be made on two standard flashlight cells or wet type cells, in testing an engine on the test block, an additional cell may be used to assure a hot spark across the spark gap of the plug.

CONDENSER MOUNTING: Mount as close to the engine as possible. This will eliminate long wires and permit hot sparks for ignition of the fuel charge within the cylinder. Condenser should be mounted on an insulated base, fastened securely so that vibration during flight will not loosen the contacts.

ELECTRICAL WIRING: All wiring used in the ignition system should be of stranded copper wire covered with an insulating covering. End connections should have soldered lugs for easy attachment. Spark plug leads should be kept clear of metal parts of the engine because the engine acts as a ground. Refer to Fig. 3 for a typical system.

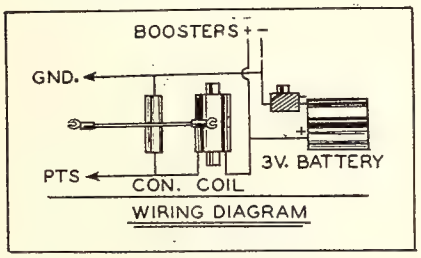


Fig. 3. Typical ignition system.

For maximum results, the wire insulation can be improved by the application of a plasticizer material. These plasticizers are comparatively inexpensive and exclude all moisture from entering the ignition system.

During overhaul operations, all electrical contacts should be clean and free from surface oxidation. Although the lugs may be tinned, corrosion will exist where high voltage electric energy is used. The lugs should be cleaned with crocus cloth or steel wool and polished to a bright surface finsh. Contacts which are free of surface corrosion, present a minimum of resistance to the flow of electrical energy.

ENGINE TIMER: When overhauling the engine, the breaker point gap of the engine timer should be cleaned with either crocus cloth or steel wool in order to remove any surface corrosion on the contacts. Use an accurate feeler gauge for setting the gap between contacts, ranging from .015 to .020 inches, depending upon the kind of engine. Each contact point should be filed perfectly flat so that the entire surfaces of the contacts will be uniform.

SPARK PLUG: Spark plugs used in model engines operate in similar fashion as full size plugs. Make certain they do not leak during engine compression and that the insulated portion is electrically isolated. Frequently, poor or sluggish engine operation may be attributed to a fouled plug. A coarse mixture of fuel and air will foul the electrodes, and the deposit of a film of oxidation on the electrodes will cause miss-firing.

The electrodes should be set at a distance of .015 to .020 inches, again depending upon the engine. Always remove any trace of oil smudge deposited on the insulated portion of the plug. A spark plug wrench should be used to facilitate its removal. (see Fig. 4.) If it is difficult to remove, apply a small amount of penetrating oil at the base of the threads. Never use pliers to remove the plug for you may do damage to the cooling fins of the engine.

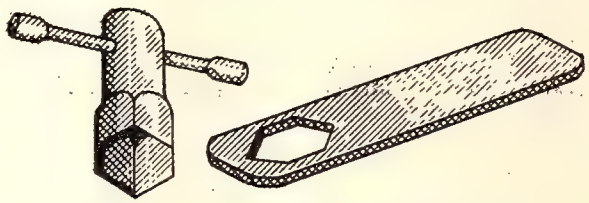


Fig. 4. Typical spark plug wrenches.

CLEANING THE ENGINE: After each day of operation, the engine should be cleaned with clear gasoline. Any residue will be removed from the interior of the engine. The breaker arm inside the engine timer should be cleaned and oiled as well as the cam follower and ratchet plunger.

After disassembly and cleaning, each reciprocating part should be coated with S.A.E. 70 oil. Plug the air intake with a wad of clean cloth or paper.

CYLINDER ATTACHMENT: On those engines that have the cylinder attached to the crankcase by means of machine screws, make certain that the screws are all tightened evenly to the same thread tension. This can be easily accomplished with a simple, yet, effective torque wrench. This makeshift device may be made as shown in Fig. 5, and can be used to measure in approximate manner the torque force applied to the screwdriver or nut wrench.

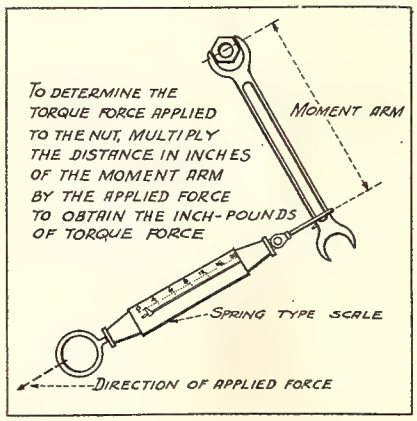
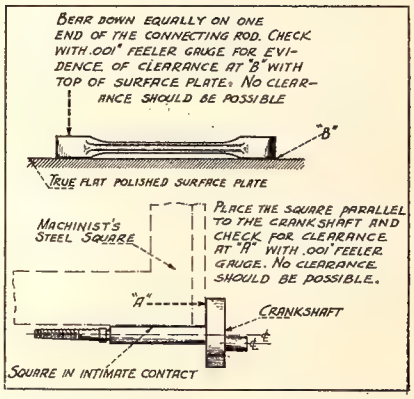

TO DETERMINE THE TORQUE FORCE APPLIED TO THE NUT, MULTIPLY THE DISTANCE IN INCHES OF THE MOMENT ARM BY THE APPLIED FORCE TO OBTAIN THE INCH-POUNDS OF TORQUE FORCE
MOMENT ARM
SPRING TYPE SCALE
DIRECTION OF APPLIED FORCE

Fig. 5. Suggestion for an improvised torque wrench.

ENGINE FAILURE IN AIR: Engine failures may frequently occur after the take-off, and when the model airplane has climbed to a limited height. Failure of the engine in flight may cause a destructive crash to the model during landing and therefore all factors which may contribute to an engine failure in the air should be considered. This may be caused by any one of the following factors: (a) Starvation of fuel. (b) Clogging of the air intake. (c) Clogging of the needle valve. (d) Flooding of the engine with excess fuel. (e) Improper fuel-air mixture. (f) Slippage in the setting of the needle valve. (g) Exhausted batteries. (h) Leaking or fouled spark plug. (i) Electrical leakage in condenser. (j) Loosening of electrical contacts or wires. (k) General failure of the electrical system caused by loose ground connection. (l) Improper cooling.


BEAR DOWN EQUALLY ON ONE END OF THE CONNECTING ROD. CHECK WITH .001" FEELER GAUGE FOR EVIDENCE OF CLEARANCE AT "B" WITH TOP OF SURFACE PLATE. NO CLEARANCE SHOULD BE POSSIBLE
"B"
TRUE FLAT POLISHED SURFACE PLATE
MACHINIST'S STEEL SQUARE
PLACE THE SQUARE PARALLEL TO THE CRANKSHAFT AND CHECK FOR CLEARANCE AT "A" WITH .001" FEELER GAUGE. NO CLEARANCE SHOULD BE POSSIBLE.
"A"
CRANKSHAFT
SQUARE IN INTIMATE CONTACT

An approximate method to check if the connecting rod or an engine crankshaft has been bent or knocked out of line as a result of a crash.

Engine failure is primarily failure of the electrical or fuel system. While mechanical or structural failures occur, the possibilities of direct mechanical failure are very remote.

MODEL CONTESTS

Sept. 15th—Hickville, L. I. Brooklyn Sky-Scrapers Annual Eastern Championships. Contact Peter Tryborn, 2734 Snyder Ave., Brooklyn, N. Y.

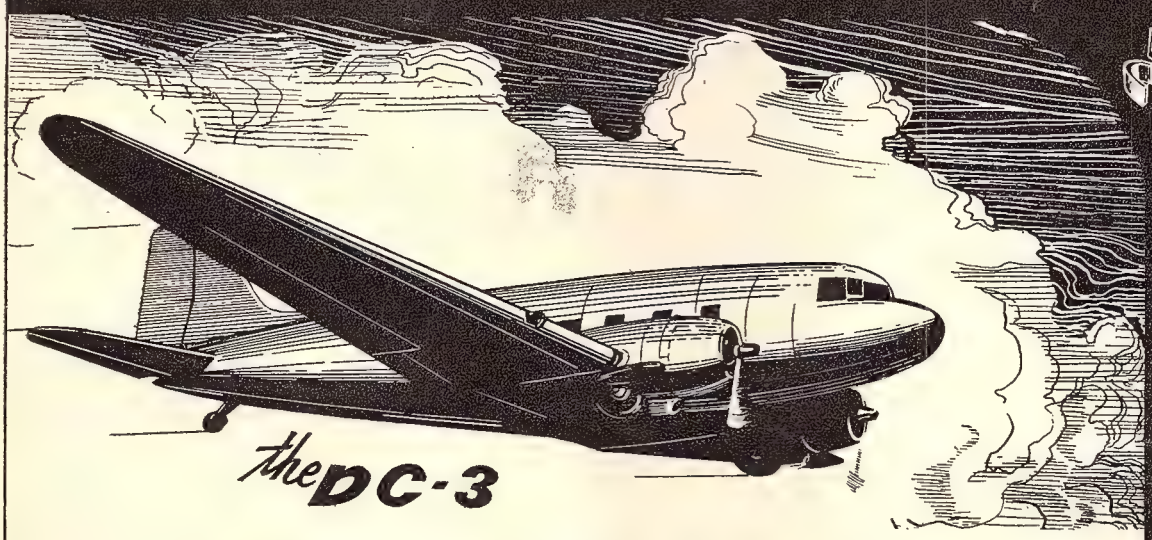
Sept. 15th—Santa Barbara, Calif. Silver Falcon Club Free Flight Gas Meet. Contact Fred G. Low, Jr., 601 East Sola St., Santa Barbara, Calif.

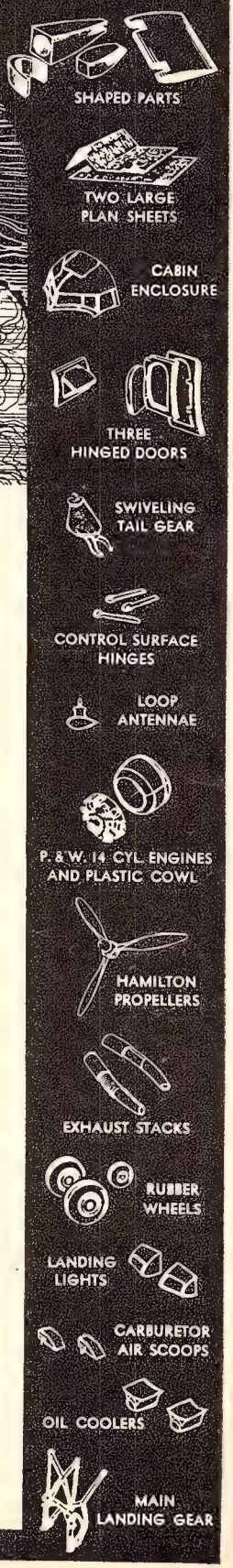
Sept. 22nd—Syracuse, N. Y. Syracuse Model Aero Club Outdoor Invitation Meet. Contact Harry C. Copeland, 101 Lincoln Ave., Syracuse, N. Y.

Sept. 29th—Bethpage, L. I. Daily Mirror Model Flying Fair. Contact L. Shulman, C/o Daily Mirror, 235 East 45th St., N. Y. C.

Oct. 6th—Wethersfield, Conn. Exchange Club Meet. Contact F. B. Bushey, 210 West Euclid St., Hartford, Conn.

A wish come true





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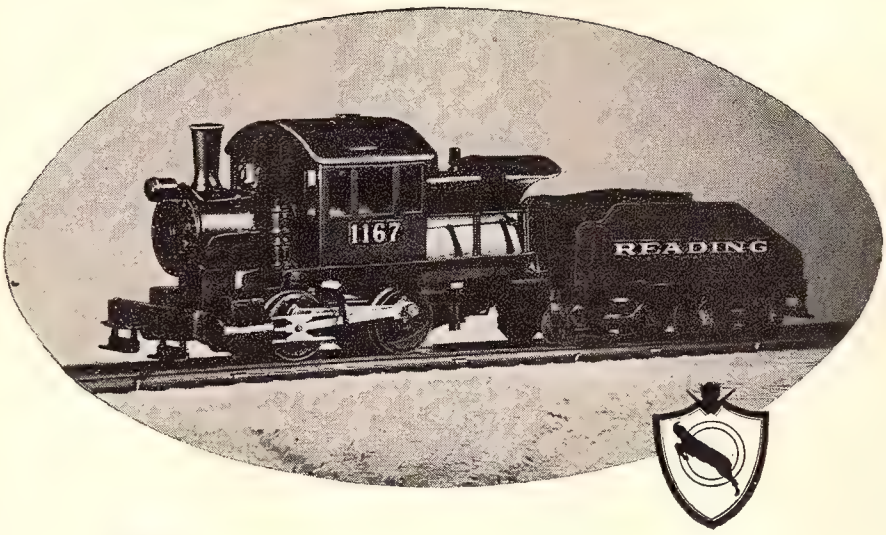

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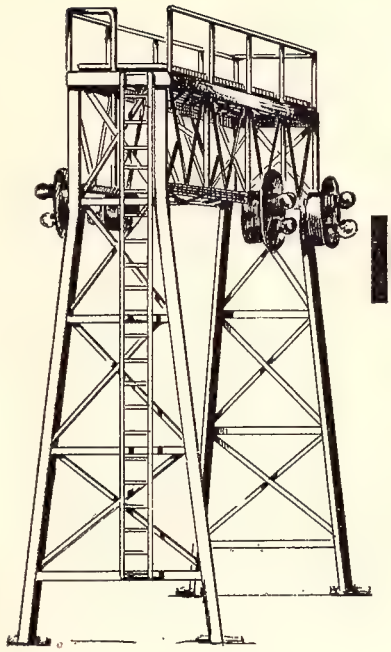


A SIMPLE INTERLOCKING PLANT

By *J. R. HUME*

MY "OO" PORT HURON AND MICHIGAN NORTHERN is a two-rail, directional control road operating on Direct Current. While the plant about to be described was designed primarily for such a system, many of the features can be adapted to other types of control. As this road had never obtained a permanent road-bed, it soon became apparent that it must be built in three or four foot sections which could be readily removed and relaid. It seemed at first that satisfactory remotely controlled switches, yards, and other complicated track sections could not be obtained with such a semi-permanent layout, but then this method of construction presented itself.

When it became necessary to provide some yard facilities at "Rosarita Beach," a suburban station a short distance from the projected terminal, it appeared that some sort of interlocking was necessary as the station was located on the opposite side of the layout from the control board. In order to cut down on the amount of work involved in a relocation, the following considerations were necessary: (1) For portability, the track section, turnouts, switch-motors, and interlocking plant should be mounted as an integral unit. (2) Electric leads from the section should be kept to an absolute minimum. (3) This plant should operate with a minimum of manipulation at the Control Board.

The interlocking features needed were: (1) Trains must not operate through trailing points set against them. (2) Trains crossing from track to track must be protected against meeting head-on. (3) Trains crossing from track to track, or entering or leaving the yard, must be prevented from reversing upon entering another track on a different control circuit. (4) The fourth possible interlocking feature, namely that the points could not be thrown while trains were passing through, was disregarded and left to the attention of the operator.

The circuit devised is shown in Fig. 1. While this plate is purely diagramatic, a scale of 1/64" to the foot has been used in drawing the track plan AA-BB. Wiring shown below the dotted line is in the control board. It should be noted that there are six leads out of the section, only two of which are necessary to the control of the switch machines and interlocking. Lead #1 controls the turnout into the yard, lead #6 controls the operation of the two switch machines of the crossover, and the other four leads are for power supply of the two track control sections. The latter four leads could be eliminated if the power input to the two main lines were in some other location.

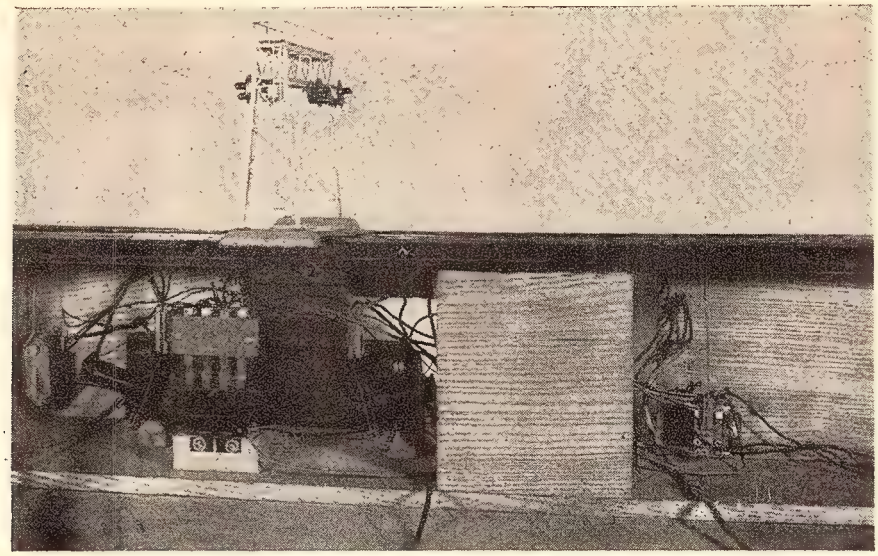
It should be noted that on the control board, the rheostat is located between the double-pole, double-throw reversing switch and the outside or normally positive rail. Thus one rheostat must be provided for each reversing section and the inside or normally negative rail is always "live" to the board at full potential. This is necessary to the operation of the crossover.

The switch machines used for the crossover are reasonably priced commercial machines, wound for from 6 to 8 volts. They are spring-loaded and when de-energized the points are set for the main. The machines are connected in series, thus giving positive simultaneous action, from the inside rail of the Westbound track to the inside rail of the Eastbound track. Thus when both tracks are set for operation in opposite directions, both inside rails will have the same polarity and there will be no current through the switch machines, the coils will be de-energized and the points will be set for both main lines. When both tracks are set for the same direction, one inside rail will be positive and the other negative, the coils will be energized and the crossover opened. Trains approaching on the left-hand track, i.e., eastbound on the Westbound Main or westbound on the Eastbound Main, will automatically crossover to the right-hand track and trains approaching against the closed trailing points will automatically stop. Also the cross-over will not open unless both mains are set for operation in the same direction, thus preventing the train from reversing upon entering the new track control section.

The machine so far might well be named an automatic crossover and as such could be used at the terminal or another point on a juice line. It, in combination with directional control and the Dechert system, fulfills the three interlocking requirements. It will also be noted that up to this point, no leads outside of the section are required other than the power leads which would be required for two parallel tracks.

In this case, however, the crossover is installed in connection with a yard throat and in some moves the automatic feature would be undesirable. Therefore, instead of connecting the lead from the Eastbound switch machine directly to the inside rail, it is led back to the control board and through the toggle switch "P" connected to the power lead which joins the inside rail at "J." Thus a cut-out is provided by which the crossover points remain set for both mains regard-

Excellent trackwork is seen in this view looking out of the yard.



The completed unit dismounted, showing the necessary leads out of the section.

less of direction of travel and one electric lead out of the section is required for its operation.

The switch machine of the turnout into the yard is similarly connected and led to the adjacent track section which contains the yard. Its operation will be similar. In the discussion so far, it has been assumed that the reader has previously read the many articles on two-rail circuits and the Dechert system. If the reader has not done so, it is necessary to say that the four power leads must be connected at the points shown, the facing side of the turnouts. Insulating breaks necessary in the rails are shown at "E."

This completes the description of the actual interlocking plant which could be used on any type of installation, portable or fixed, with or without signals. It sounds too simple to be true, but has actually been thoroughly tested on my layout and will be the standard system of interlocking used on the entire road, as by variation it is adaptable to various track set-ups.

For straight, unbroken sections of track or on curves, the rails could be mounted on a flat ½" board. With the introduction of switches and switch machines, it was found that separately mounted switch machines entailed too much work in relocation. Those previously installed have long since been torn up. For the interlocking plant, it was decided that trackwork, switch machines and signal interlocking must be installed in a unit, that the wiring and operating circuits must be within this unit insofar as possible, and that the leads from the section must be as few as possible and permit simple connections to the Control Board.

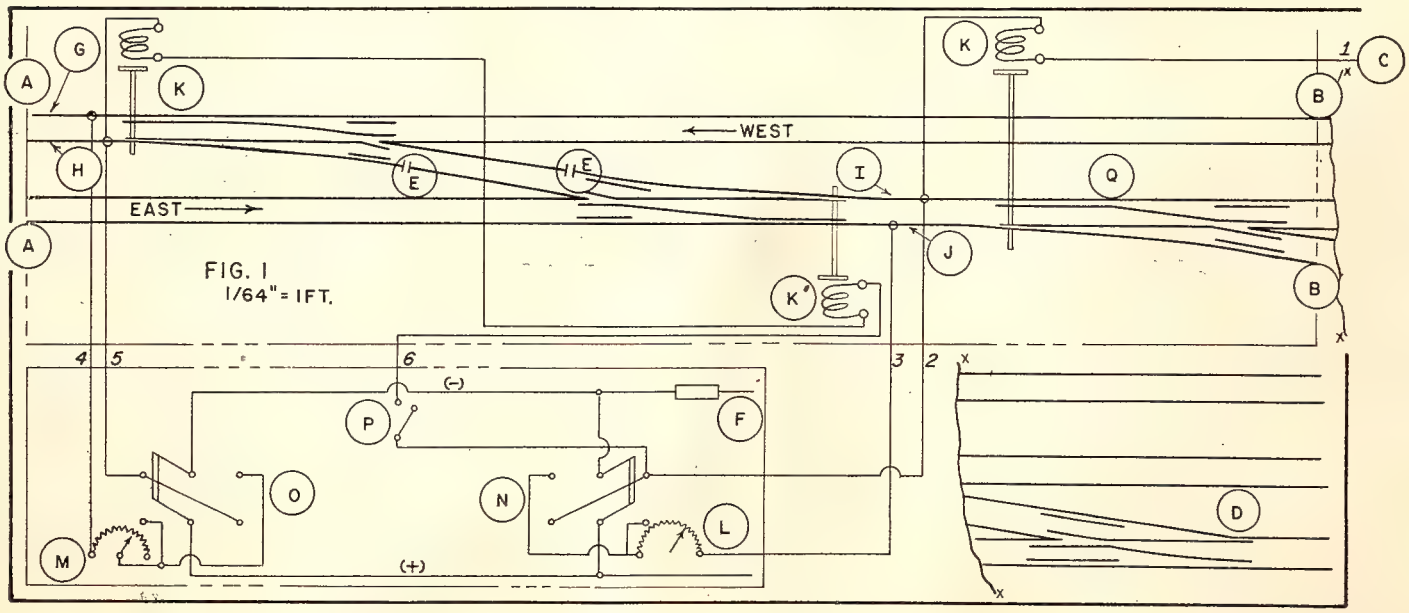
Fig. 2 shows the construction of the track section and integral unit. Dimensions above the roadbed are prototype dimensions, scaled 1/64" to the foot. All such dimensions are marked "s." Parts below the roadbed can be the same dimension in all gauges, as a clear height of six inches is required to accommodate the plant. In this particular installation the table top must be dropped 6¾" below that of the adjoining sections.

In order to reduce noise and vibration, a fairly substantial box is required. Use #4 flat-head wood screws, 1¼" long, drilling for the screws and counter-sinking the heads. The box top T is made from ¼" 3-ply wood, the bottom V from ½" ash and the braces and ends, W and U, from 1" x 6" ash. In assembling V, U and T to form the box, T is allowed to overhang each end by ½" in order to allow for adjustment of gradient with adjoining track sections.

The track plan is laid out on T and a piece of ½" pine cut and beveled to form the road bed R. In laying out your own installation, there are excellent articles dealing with super detail track in previous issues of this magazine. With the track plan laid out, locate the best position for pieces W. These serve both as braces for the box and the mountings for the switch machines K. Then cut out the brackets X for mounting the signal relays. An insert shows the end elevation of these brackets which are also made from 1" ash. Assemble the base for the signal relays to these brackets and after assembly, overturn the box and secure the brackets to V as shown. Then remove the signal relay base, as you have obtained an exact fit on the brackets. At this stage, the completed box, with the exception of the top surface of T, should be given two coats of clear varnish to prevent warping. After drying, mount the road bed and the ties. Three scale feet from the extremity of each pair of switch points cut slots 3/32" x 5/8" through road bed and piece T to accommodate the switch operating rod.

Rails are laid in accordance with standard practice, with the exception of the point assembly. In making up this track section, I had considerable difficulty with fiber tie rods. They sometimes bind against adjoining ties and under the closure rails and do not last very long because of the weak spot where joined to the brass tie rod. The switch machine is mounted under the track and the operating rod is vertical. This eliminates the the resistance created by the angular motion imparted to a tie rod led in from the side of the right of way, also conserving space.

(*Continued on page 54*)



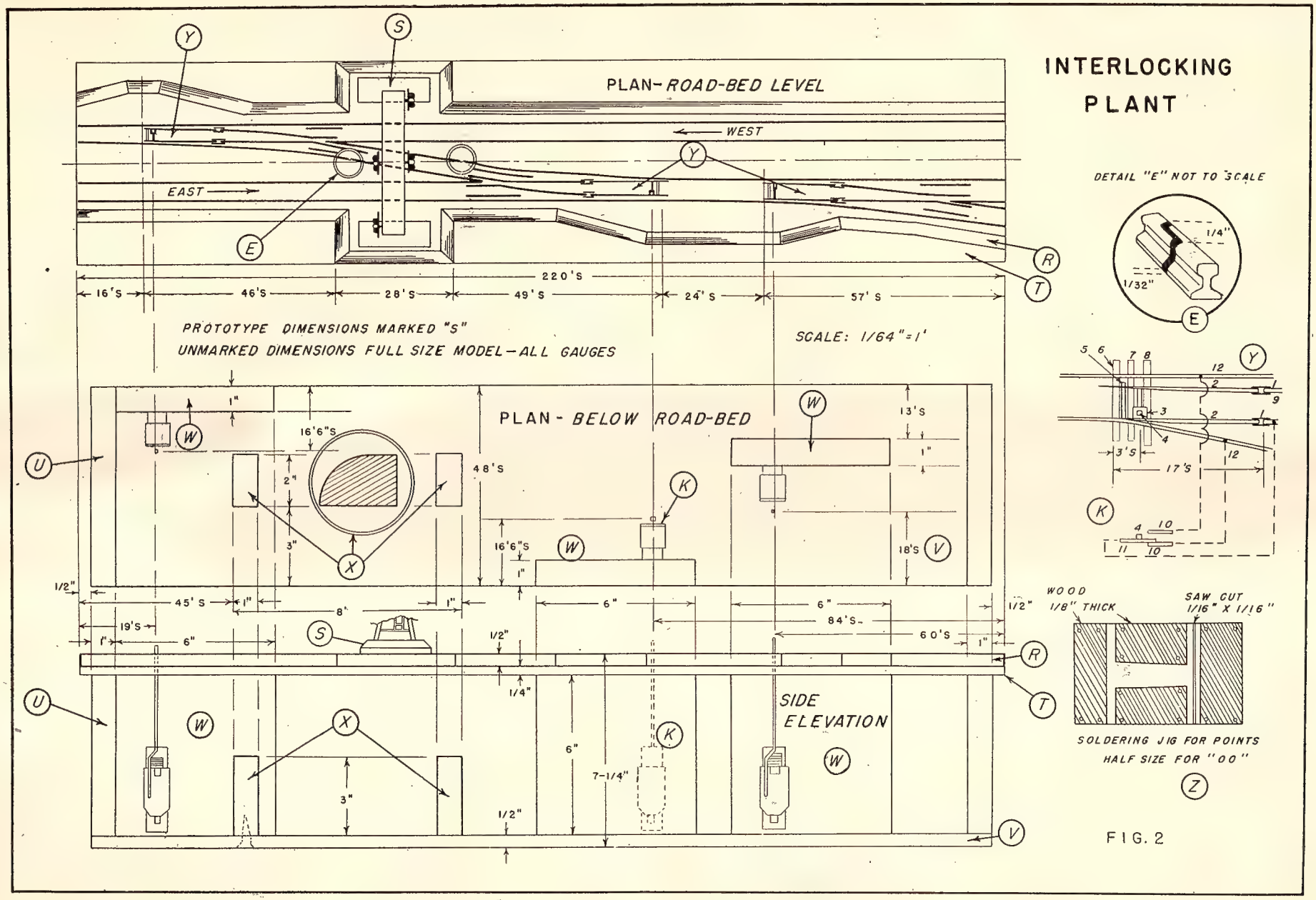
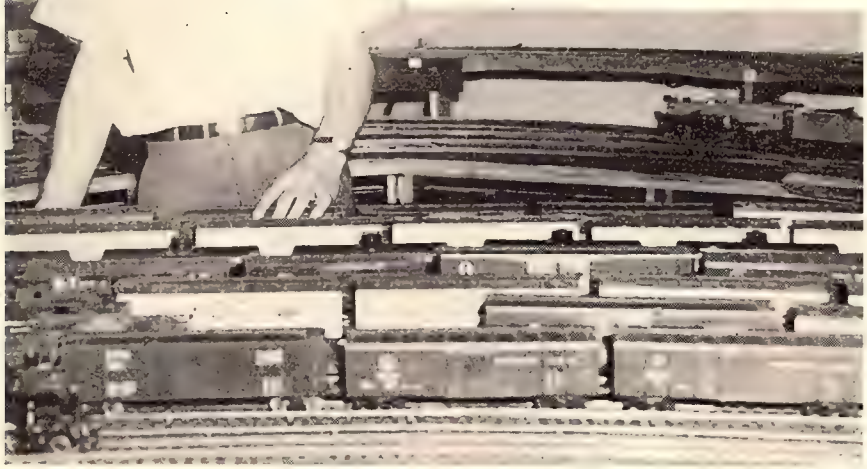

INTERLOCKING PLANT
PLAN-ROAD-BED LEVEL
WEST
EAST
220'S
16'S
46'S
28'S
49'S
24'S
57'S
PROTOTYPE DIMENSIONS MARKED "S"
UNMARKED DIMENSIONS FULL SIZE MODEL—ALL GAUGES
SCALE: 1/64"=1'
PLAN-BELOW ROAD-BED
SIDE ELEVATION
DETAIL "E" NOT TO SCALE
1/4"
1/32"
WOOD 1/8" THICK
SAW CUT 1/16" X 1/16"
SOLDERING JIG FOR POINTS
HALF SIZE FOR "00"

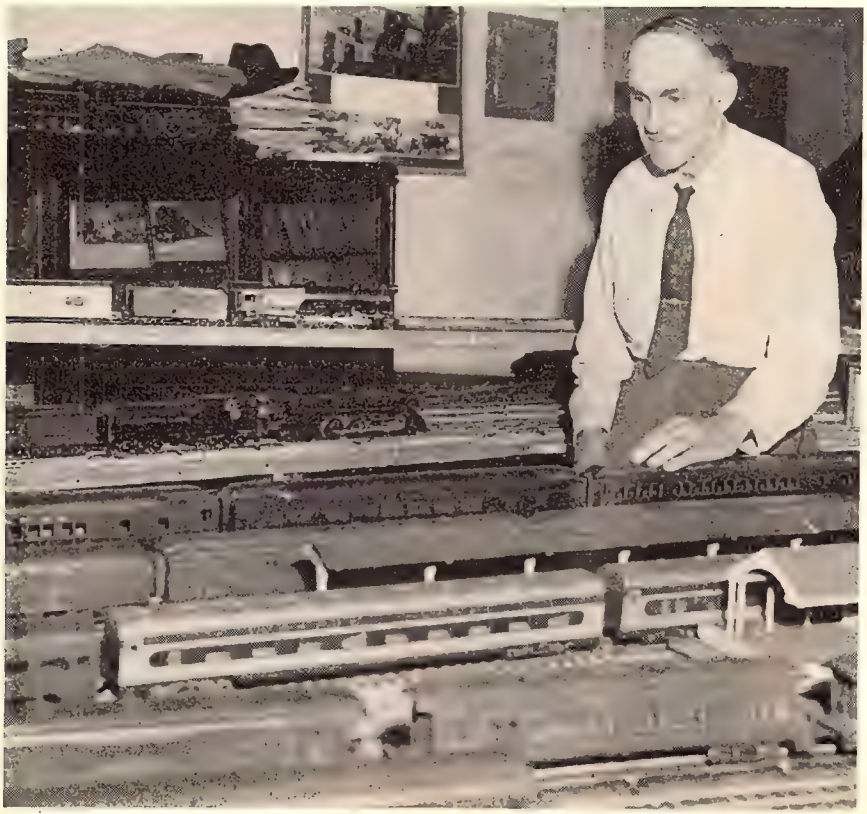
FIG. 2

"CENTRALVANIA

ALL A-B-O-A-R-D! Main Line Special about to leave for Bridgeport, Ohio, to take in a railroader's dream! That's the Centralvania Railroad which maintains a full schedule and claims no accidents during its exciting history. The huge layout is located in J. Irwin Cilles' home at 4 Prospect Ave., Bridgeport, which includes over 4,000 feet of track and 18 locomotives—all valued at $5,000! Brains behind this big road belong to J. Cilles, W. Gwinn and H. Glenn, all three members of the Hempfield Terminal Club, which was formed back in 1937 in honor of the Baltimore & Ohio. This club now has 35 regular members from the Greater Wheeling area. Gwinn, who started model railroading way back in 1913, is now vice-president of the Mid-Central NMRA.



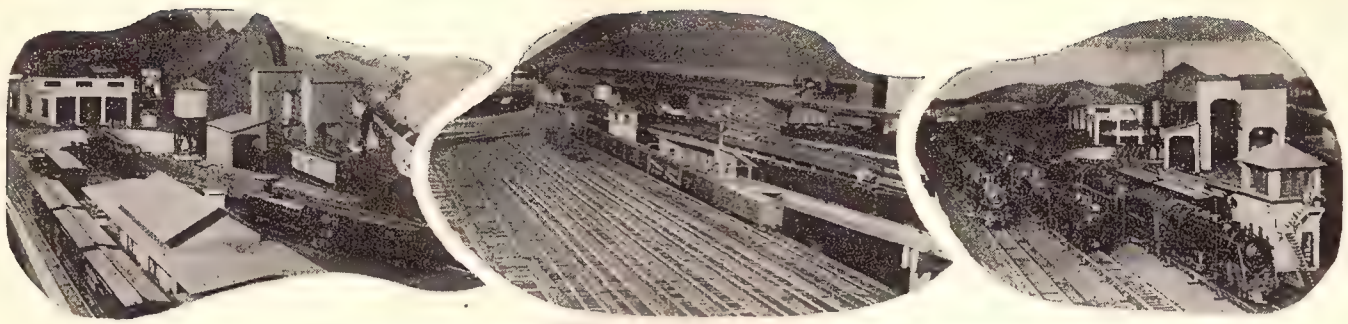
Besides the 18 locomotives, this layout boasts of 130 freight and passenger cars, all bearing their own serial number which is recorded in the road records. Fifteen trains can be run simultaneously by the mere push of a button on the control panel. An intricate, electrically controlled block system prevents any of these trains from collisions and derailments. The panel also controls a total of 95 switches—enough to drive any one man nuts! Power for the road comes from three 18-volt transformers and a 7-volt rectifier transformer for relays. Signal lights operate on a 1½ volt transformer, with pen lamp bulbs used throughout the system.



But let's start from the beginning, as Mr. Gwinn explains it—He has been a booster of Model Railroading since 1913, when he had Voltamp and Carlisle & Finch trains in 2-inch gauge. These were sold in 1922, replacing them with Ives trains in O gauge tinplate, later adding Lionel, Dorfan and American Flyer. Tinplate satisfied Gwinn up until 1936, at which time he got interested in O gauge scale models with Mr. Cilles, the following year seeing the start of an elaborate layout. As Gwinn puts it, "we were cramped for space, having only 12' x 24' room at our disposal, so we cut tunnels through the walls, bridged the hall and stairway and used the two back rooms. That's where the Model Railroad Club of Greater Wheeling area was born, later changed to The Hempfield Terminal Rail-

Top—First-class locomotive builder, Howard Glenn—he builds 'em for Centralvania.

Bottom—W. Gwinn gives a "boost" to the limited, himself a booster for model railroading since 1913.



SPECIAL"

road Club." The club was organized at this location, and the following year was granted permission to use the third floor of the B. & O. Passenger Station. Ten-day exhibitions were held each year up until Pearl Harbor, at which time operations had to cease. Just reorganized this past January, their next exhibition is planned for Nov. 29th to Dec. 8th inclusive, open evenings and both Saturday and Sunday afternoons.

But getting back to the Centralvania Road, they outgrew their old quarters at No. 2 Prospect, and so Mr. Cilles built *an attic*—75′ long and at some parts 30′ wide—and proceeded to build his house under it, at least that's how they kid him about it! This was finished in 1941 and the job of moving a thousand feet of railroad stared them in the face. A good railroad must never stop running, and so in true railroad fashion they built an entirely new unit before tearing down their old layout which had to be completely rebuilt and added to the new one. This was back in 1941, and there's lots to be done yet!

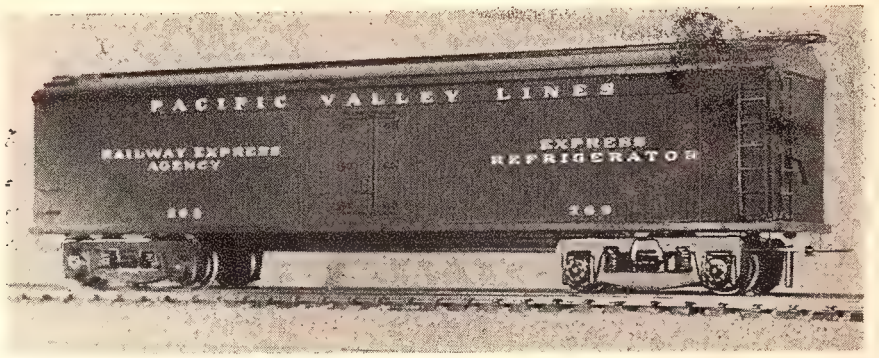
Glenn's Yard (see photo) was only built this past Feb., and is used to store full-length trains. The first track is 24 feet long and the 9th track 12 feet! There are lead tracks out of each end onto the main line with electric track switches and individual track control. The operator can flood the main line with nine trains out of this yard as well as five passenger train out of Irwin Station—all in a moment's notice! Irwin Yard, seen just back of Irwin Station in the photo, has eleven tracks ten feet long, holding a total of 110 freight cars with switches at one end only. Albers Yard is a small switching and servicing unit containing a 3-stall roundhouse, turntable, coal elevator, water tank and signal tower. This yard was bought from Wm. Albers, of Lakewood, Ohio, along with four locos., fourteen freight and four passenger cars, plus track and scenery, all hauled by truck down to Bridgeport and reassembled to fit their system.

It's next to impossible to get lost at Centralvania, for Cilles has a very elaborate map covering their entire system, with all sidings, switches, stations and right-of-way equipment clearly indicated. Here's real railroading at its height—so come on, fellas, climb aboard the "Centralvania Special"!

Meet the boys who operate at Centralvania. Left to right—H. Glenn, I. Cilles, R. Rackhan and W. Gwinn.

Irvin Cilles, "Armchair General," directs the traffic at Centralvania.

Express Reefer



By JOHN R. BARKLEY

EXPRESS reefers are used in the make-up of most passenger trains and usually three or four will be seen up at the head end of any mainline train. These sleek fifty-footers are a nice addition to any pike and one or two will probably be sufficient for a train unless it be on a large layout, such as one owned by a club. You could make up a solid train of reefers and run it as a milk train or fruit special. Perishable cargo, such as fresh strawberries, are given special consideration by the railroads, and these trains, with high-speed passenger trucks on the cars, are run on a fast schedule.

There are any number of ways to go about constructing these cars for your road. First, you could buy a kit, or make up your own sides of cardboard and scribe them with a sharp instrument. After painting add decals for lettering. One other way would be to buy the sides already printed. For a nominal sum, you may have sides made up by Ned Van Buren of Hollywood, California, with your own road name, which is just what we did. For the body, we used 1/8" wood for the ends, sides and floor. The roof was cut from a piece of ready-shaped roof stock. No specific method is necessary for assembly of these pieces as all will be covered except the roof. Make certain, however, to get the ends and sides square and when measuring these pieces make allowance for the thickness of the card sides and ends for the overall length and width. Use quick drying cement and small brads. Brads are driven through the roof at the ends where the roof walk will later cover them and also where the hatches will later be installed. In this way, no holes will have to be puttied in order to have a smooth paint job.

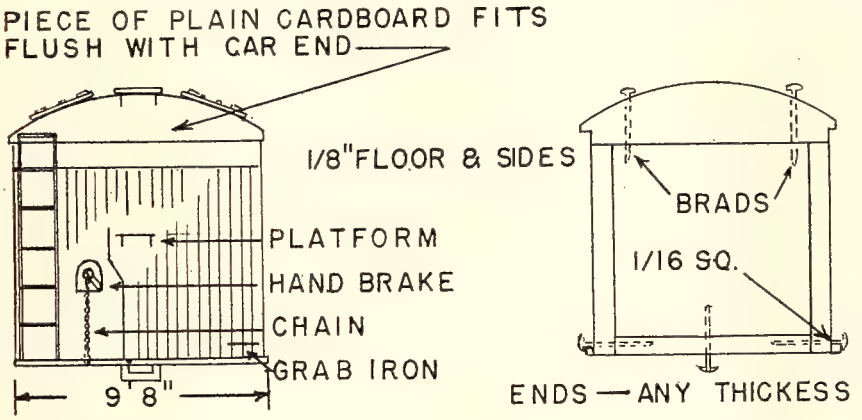
Notice that the roof has a bead or slight overhang projecting beyond the sides. When the wood body is assembled, add the center beam. This is channeled, and if you do not have a power saw to cut the channel, make it from 1/8" stock, adding a strip of 3/16" wide cardboard to form the channel. The triple valve goes on one side and the brake cylinder on the other. These are best purchased.

Before adding the sides, give the roof a good sanding, next a coat of filler or shellac to fill the pores. When dry, sand smooth with fine paper and you are ready to add the roof detail. The roof walk should be made from a piece of 1/16" wood but sanded down thinner for HO gauge. Cut to width and scribe the two lines lengthwise to simulate the three planks used on the prototype. Cut the roof supports from cardboard and cement them to the roof, followed by the roof walk. The ice hatches should be added next. These can be made if desired, but can be economically purchased and make a better job. If you make your own, use small pieces of wood and cardboard and cement in place to complete the roof detail.

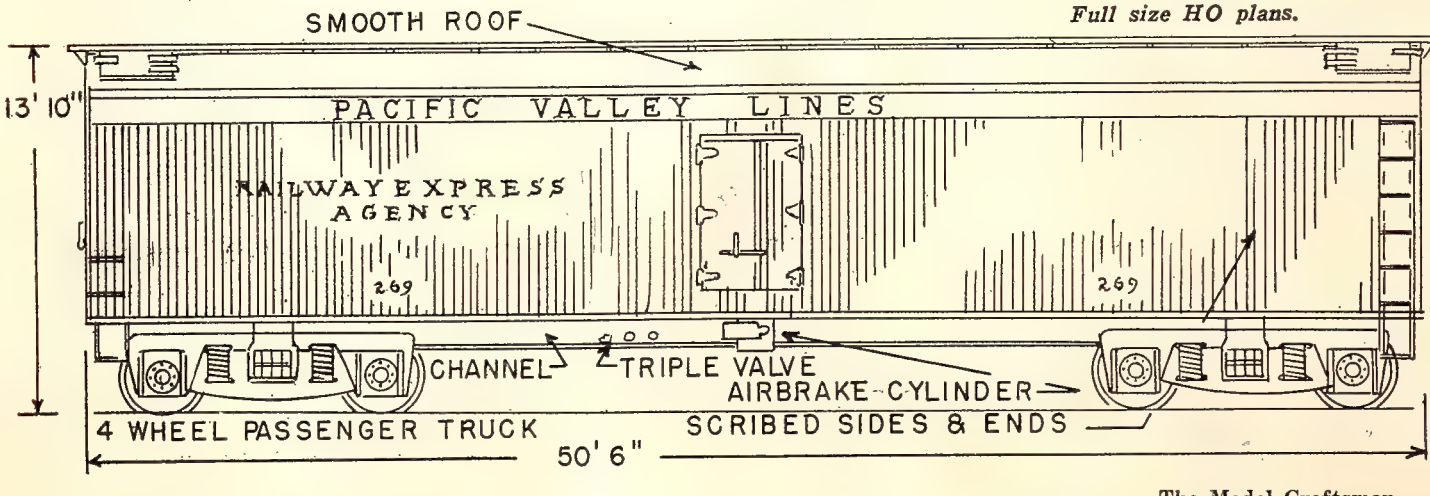
You should now prepare the sides and ends, fitting the end pieces on first. The sides are then cut to an exact fit so that the end joints are on the ends and do not show from the sides. If the fitting is done carefully, it will not show much after painting. The model is usually viewed from the side and so it is best to make the joint as described except on cars with metal dreadnought ends in which case the end has a flap that folds around over the side covering up any crack.

Notice on the drawing that there is a bead or projection at the bottom of the side. This was added for extra detail, the reefer being a free-lance job. This is not necessary, however, as most reefers do not have this, with the wood sheathing extending clear to the bottom of the side. Now, before cementing the sides, paint the part of the roof which meets and overhangs the sides. This will keep you from

(*Continued on page 58*)



Full size HO plans.

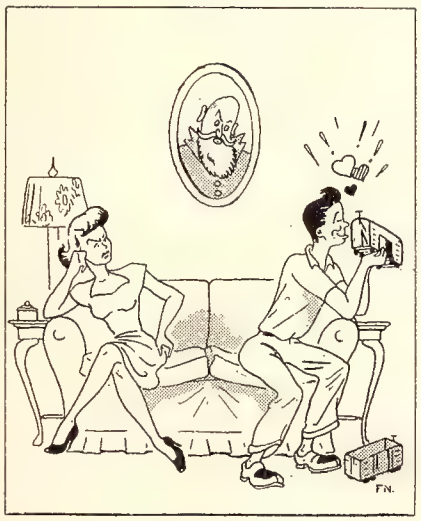


"OPERATING TROUBLES— The MODEL WIFE"

By JAMES D. HALL

HAS your wife ever said, with a meaningful glint in her pretty eyes: "Hector, did you marry me—or a model railroad?" Yes? Well, brother, you're in for operational troubles!

With patience and the proper approach, it is possible to remedy this major operating difficulty without ditching either the system or the wife. Let us consider the prime objections to model railroading most frequently expressed by our women folk: #1. *"My husband's railroad has made a widow of me. Why, I hardly see him anymore!"* #2. *"I'm beginning to think that he finds an old box car more attractive than he does me!"* #3. *"The house is so cluttered with models that I hardly dare set foot in the basement. It's just littered with switches, track and other junk!"* #4. *"I thought that only little boys played with toy trains, until I met my husband. Just what does he get out of it?"* #5. *"I just know he must spend an awful lot of money on it!"* So there you are, gentlemen! Five *common*



"He thinks more of that old box car than he does me!"

and *just* causes for complaint. Other reasons voiced by other wives will generally fit into one of these categories, and our wives *DO* have cause for indignation!

If we are to have peace in the pursuit of our hobby, we will either have to pacify our better halves or make them fellow enthusiasts. As a married man of seven years, I say that the latter is much to be preferred. Make her your partner in Railroading, but do not expect her to fall in love with it in one night! A straight sales job will fall flat, but with the proper approach, you may get reciprocity and in time a real rail partner.

Let's attend to reason number one. Give up a little of that precious "shop time" toward gratifying the little women. Apportion a few of your evenings each month to her favorite form of gadding. After all, neither your bank account nor your wife can stand more than three nights out a week. That will leave you four nights of the week to succumb to the lure of the high iron. In doing so, you have eliminated feminine objection *Number One* and done much toward convincing her that she is more comely than an old box car. While you're gadding, brother, consider the apparel displays downtown with the same zeal that you give the hobby shop window, and your wife, as anxious to play the game with you, will display some appreciation toward your interests—and one day, if you're lucky, she will catch on.

The third true bill against us is simply "messy operations." Resolve never again to lay a right-of-way between the washing machine and the tubs; nor to scatter balsa wood shavings on the living room rug; nor to intrude upon the sanctity of the kitchen drawer with the tools and oddments of your craft. Lobby for space of your own and don't let your railroad be cause for irritation. The maxim, "Out of sight—out of mind," most certainly applies to this phase of our troubles.

Given *some* of *your* time *for her own*, and freedom from too much railroad-in-sight, most wives are amenable to indoctrination. Objections #4 and #5 can best be eliminated by making our wives partners in the pursuit of our hobby.

Seven years ago, I approached the indoctrination of my fair one with de-

"I just love that man o' mine!"

liberate and unrelenting zeal. We honeymooned on a jerk-line road, and the photos made by the newly-weds quite casually included in their backgrounds all of the railroadiana that this rail-maniac dared to include! Consequently, there is now an association between the Railroads and Us that has stood me in good stead these intervening years. It may be expensive, but it's never too late to plan a second honeymoon—with the lambent light of the moon playing over friendly rails.

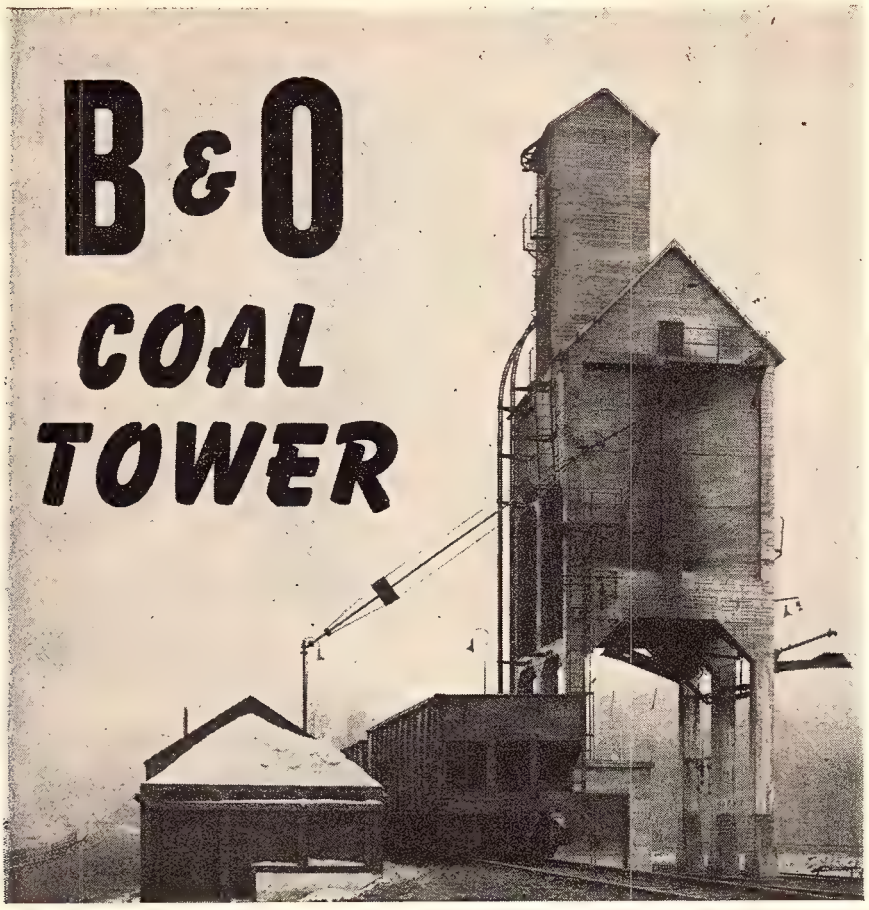
To answer that eternally feminine query: "I can't see what he *gets* out of it," encourage her to help you, in some little way, so that she may pridefully acknowledge a part in your creations. Wives do not seem to have the patience for tedious assembly work, therefore that which is pleasure to us may only be irksome to them. With this in mind, don't thrust a screw driver into your helpmate's unwilling hands. Tell her you need the feminine touch in making lace windows for your parlor car. Let her design a background, make a figure or turn out "something cute," even if the latter is not quite up to masculine ideas of railroading. Bear up under it bravely and rave about her contribution, and some day you'll find her thinking about scale. My wife, so encouraged (excuse my justifiable pride), has turned out to be a whiz at railroad photography and set painting. Therefore, the E. & G. H. Western has become something of a community project in which we both share. What does it matter that Witte's classification is incomprehensible to her, or that she does not know a Baker valve gear from an air tank?

Wherever you can, make your hobby meaningful and pleasant, and don't ask her to work in a damp basement or go out in the rain and mud to look at a switch engine. (Deftly does it! In time she will drag *you* out into the rain to glory in a dead and rusted steam engine!)

Having given some part of her own work to your joint creation and marveled at your deftness with pliers and tap wrench, your wife will learn to appreciate the work that goes into a model. She will understand how different models are from *toys* and perhaps beam with pride over a husband who can do such things with his own hands. Would a wife, so indoctrinated, complain over the nominal investment a man makes in his hobby, or fail to understand the interest that it holds for Hector and brother Joe?

Brothers, give 'em a chance to make a place for them where feminine skills can vie with yours, so that they may be proud of "OUR" railroad and not merely tolerant of "YOURS"! Take those objectionable features of your hobby out of her *hair* and put the pleasure details into her *hands*. Share your free time and your hobby with her, and one day she'll come into the roundhouse, too!

B & O COAL TOWER



By THOMAS LEAMING

THE engine terminal facilities to be described in this series of articles were built by the B. & O. a few years ago at Cowen, West Virginia. They include the coal tower described this month, as well as an ash handler, water tank and small modern engine house to be given in future issues, together with the layout of the entire terminal. These facilities are ideal for adapting to model purposes, for they fit in well with the limited roster of a model pike.

Although the original coal tower was built of reinforced concrete, my model has been made of the old reliable bristol board, which is as strong as concrete when scaled down. This is the kind of bristol sold in stationery stores for making posters—large sheets usually cost about fifteen cents each. They usually come white in color, but if you can obtain the gray color in heavy weight, it will save some painting.

The carcass of the tower is easily made by marking and cutting out the bristol board in the general pattern shown in fig. 1. The four segments at each leg are wrapped around and cemented to form a substantial upright. The narrow tabs along each upright panel in the pocket itself are folded back to provide the setback for the paneling. In making the folds, slit the bristol board almost through with a razor blade. The narrow depth strips will have a slight tendency not to stay back at right angles and this will be corrected when the backing is put in place. The depth at the bottom of the paneling is a slanting piece which is best affixed before the panel itself. It can then be made longer than it actually shows and the panel can rest its bottom edge on it. Since it will not be visible, no similar depth piece need be added at the top of the paneling. For similar reasons, no thickness need be indicated by extra pieces at the tops of the legs.

The panel for the rear of the tower extends upward above the roof and has four sides of the enclosed dump made integral with it. When this section together with the roof and sloping floor are cemented together, your tower is beginning to take form.

The average model builder, including myself, will not want to take the trouble to show the marks of the boards from the concrete forms used in casting the tower. In the photos, these show up enough to make it almost look like a wooden tower. If you do want to show these marks, *before* cutting out the sides, scribe the *back* of the bristol board with a sharp pointed pencil while the piece is resting on another piece of paper. Some experimenting will be necessary to tell you just how hard you must bear on the pencil. The impressions on the right side will gather both paint and dirt and appear like the form marks.

The flaring bases for the tower feet, as well as the various housings and coal dumping facilities, can easily be fabricated from bristol board using the same methods for obtaining depth.

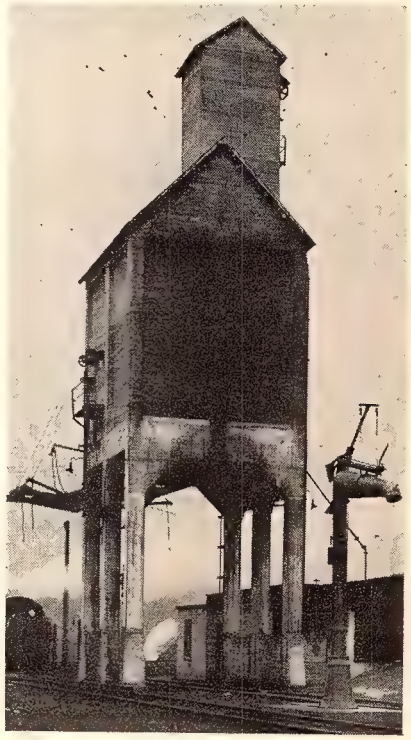
The rails going up the back of the tower which carry the buckets, can be made from flat strips of bristol board painted black. Note the many braces to the back of the tower. The door at the very top of the back must be affixed. It should be set into a cut-out in the housing, although it looks very well hung outside and even without the paneling.

Before adding much more detail, all concrete work should be painted a whitish gray or whatever shade you care to use to indicate cement. Mix a tiny bit of black with some white paint, add a small amount of japan drier and you will have a quick drying mixture. When it is quite dry, smudges of lamp black can be smeared on where engine smoke would naturally hit the tower.

The various ladders can be made from stamped brass ladder strip or built up from pieces of wire the hard way. Railings can be easily soldered on—first the stand-off posts, then the rails themselves. The safety ladders are made from ladder strip to which loops of wire are soldered, as seen in fig. 2. Make these loops by coiling some soft wire around a dowel of proper size and then filing or sawing them off with two cuts the width of the ladder apart as shown. The other vertical members can be soldered to the loops. The ladder had best be spiked to a piece of wood during all the soldering.

The many platforms are soldered up from shim brass or tin can on the job. First push pins or pieces of wire into the "concrete" at the line of the floor of a platform and where the braces will come. The floor is then soldered to the pins and the braces soldered to the floor and to their pins. Next the uprights for the railing are soldered to the floor (it will help if the floor is pre-drilled to take these), then the lengthwise members of the railings. Ladders are soldered to the railings and floors as well as to other pins thrust into the concrete. This work can also be done with bristol board, split bamboo, and cement, but the time it takes for each blob of cement to dry makes the solder method much faster. If a hot iron

(*Continued on page 59*)



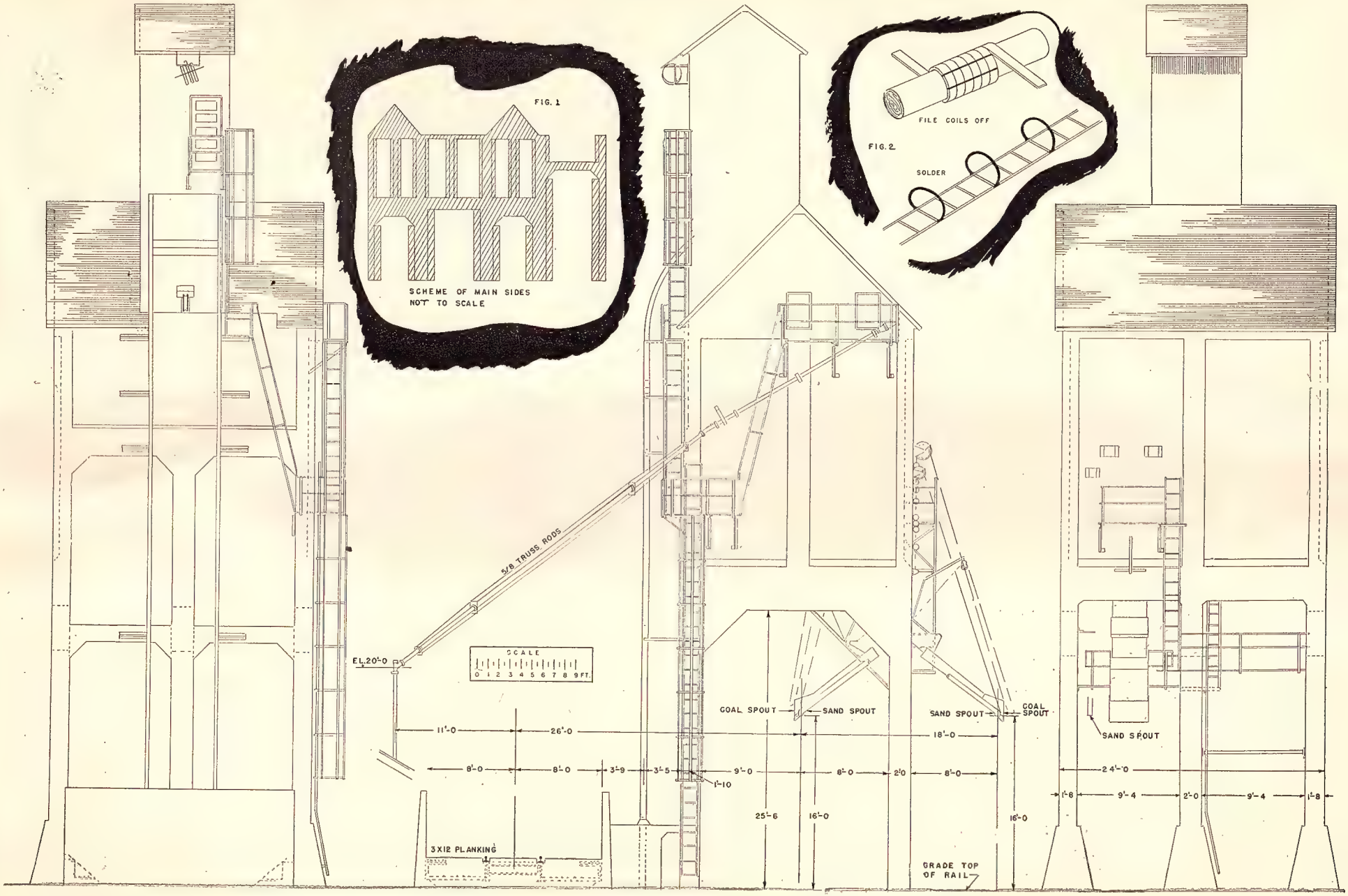


FIG. 1
SCHEME OF MAIN SIDES
NOT TO SCALE
FIG. 2
FILE COILS OFF
SOLDER
5/8 TRUSS RODS
EL. 20'-0
SCALE
0 1 2 3 4 5 6 7 8 9 FT.
GOAL SPOUT
SAND SPOUT
SAND SPOUT
GOAL SPOUT
SAND SPOUT
11'-0
26'-0
18'-0
8'-0
8'-0
3'-9
3'-5
9'-0
8'-0
2'0
8'-0
1'-10
24'-0
1'-8
9'-4
2'-0
9'-4
1'-8
25'-6
16'-0
16'-0
3X12 PLANKING
GRADE TOP
OF RAIL

RISE OF SCALE DETAIL

along the tinplate track with *Louis Hertz*

DURING the 1870's and 1880's, the American manufacturers of tin and cast-iron trackless pull toy and clockwork locomotives had been more or less feeling their way toward a somewhat typical form of style locomotive. Such locos, mostly 2-2-0 types, with some small 0-4-0's and larger 4-2-0's, had served to provide the boys of the period with a satisfactory representation of a real locomotive of that day—high stack, sweeping pilot, fancy domes, and other outstanding features of the prototype. Such engines have a great deal of attractiveness to us today, through their style and design which are suggestive of the real thing and convey a fascinating impression of the romance of railroading, both real and model.

The tin engines, made of simple die-cut pieces of metals hand-soldered together and gaily painted in bright colors, served their purpose well, continuing to flourish for some years after the introduction of iron models. The first iron models brought out by Secor, Ives, Stevens and others in the 1879-1885 period, were more or less iron replicas of the contemporary tin pieces. However, it was not long before the manufacturers realized the process of iron casting presented opportunities for skilled pattern makers to create far more realistic models than had been obtained previously. Toward the end of the 1880's, these models started to take the stage, and as was inevitable, the largest and best of them turning out to be very accurate, perhaps even perfect, scale replicas of the real thing.

Simpler, cheaper models, which were merely representative, continued to be made. In a few instances, however, designers and pattern-makers provided as the "top" models in different lines, units which are among the most accurate and exactly scaled tinplate models ever manufactured in this country.

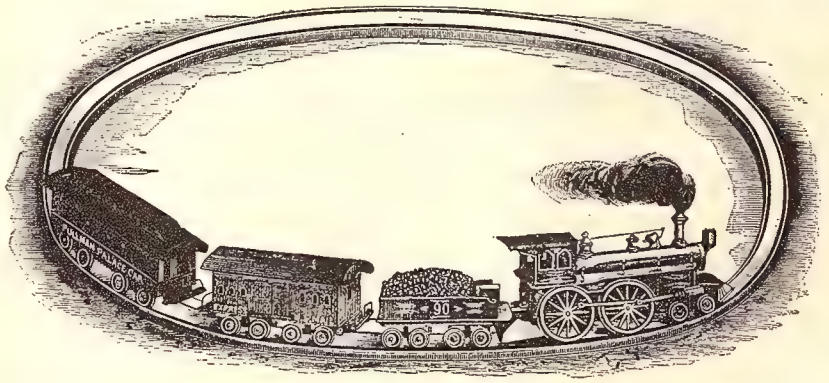
Two of these models have already been illustrated on these pages during our discussion of the iron locomotive in general, June & July, 1945, the featured models of the Carpenter and Wilkins lines. The Carpenter locomotive, while apparently the largest iron model ever made, was an early effort in the direction of scale modeling in tinplate, and is by no means as accurate or attractive a model as the largest Wilkins 4-4-0, which was made to 3/8" scale throughout, or the deluxe Ives iron locomotive which is illustrated this month which is larger than the Wilkins.

This Ives train appeared about 1890 and was the largest iron pull train ever put out by this manufacturer. It was sold in the complete set as shown, locomotive, tender, box car and coach, although the old catalog cut fails miserably to do justice to the beauty and perfection of the models, particularly the locomotive and tender. The entire train measured 55"—almost five feet—from tip to tip, retailing for about $6.00 complete in a wooden box! It is assumed that the locomotive and tender were also sold separately.

Note that the locomotive still retains the slightly diamond shaped stack, so popular in the 1880's. A later and improved model of the locomotive was put out by Ives during the 1890's, made from reworked patterns, featuring larger wheels and a slightly tapering stack with a plain lip around its top edge. The train pictured, is last shown in the Ives catalog for 1900, although it may have actually been discontinued slightly before or after this date.

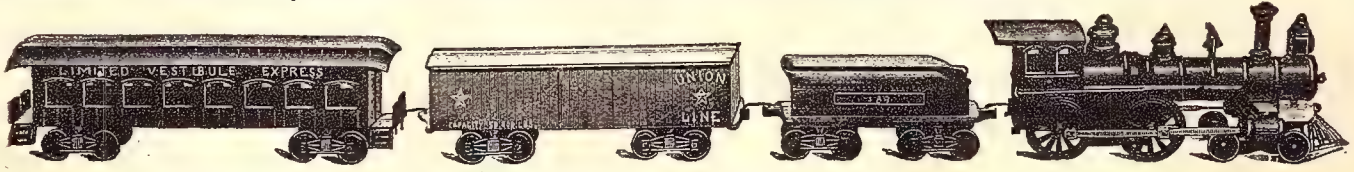
One interesting point gained from the illustration concerns the origin of Ives' famous passenger car lettering, used by them up until as late as 1918—"Limited Vestibule Express." The coach pictured is the earliest piece of Ives rolling stock so lettered, and in error, for it is not a vestibule car. The actual model is exactly like the illustration. Vestibule passenger cars were just starting to come into widespread use in the late 1880's and had gained a tremendous amount of publicity, probably influencing Ives into lettering the car as they did, thereby entering into what was for that company an unusual lapse of accuracy. They must have felt the error of nomenclature keenly, for it will be recalled that when they started making track trains in 1901 and lettered

(*Continued on page 59*)



A deluxe Beggs live steam train of the 1890's with 4-4-0 locomotive. The coal in the eight wheel tender was not imitation, but was made up of tiny pieces of real coal. Actually, the locomotive burned alcohol for fuel.

This is the largest iron, trackless pull train ever made by Ives, almost five feet long, the locomotive being a very close replica of the prototype. The iron box car had working sliding doors, and details on the locomotive extended to tiny bolt heads cast on the side rods. This train was manufactured in the 1890's.



"O" GAUGE LIVE STEAMER

THIS O gauge Live Steamer was started back in 1941 by Ernest Stalder, of 3107 77th Court, Elmwood Park, Ill., inspired by the articles of Martin Lewis. Various changes were made from the original plans. He first cut a 4-8-4 frame short to make a 4-6-4 with 1½" drivers in order to negotiate O72 curves on his electric layout. Stainless steel tires are shrunk on cast iron wheels. Crosshead guides and spreaders, pistons, front and rear truck wheels are also of stainless steel. Siderods and the rest of the valve motion are nickel silver. Pistons have cast iron rings. Cylinder bore is 7/16 x 5/8 stroke. It has been tried with compressed air and runs smooth and fast, so the boiler is the next job.

For experimentation sake, Stalder built

this live steam boat, whose power plant consists of a 2" dia. boiler by 8" long, no flues, and heated by an alcohol burner. The engine is one cylinder ½" x ¾" oscillating type. The hull is made of white pine with a 2 lb. brass keel. She runs on one boiler filling for about a half hour. Speed about 300 ft. per minute with 50 lbs. steam pressure.

Before working on the locomotive boiler, Stalder would like to see boiler plans for ¼" live steamer by L. B. S. C. How about it, you live steamers, can you help him out?

EASTERN LIVE STEAMERS HOLD MEET

THE Eastern Live Steamers were out in full force on Memorial Day, May 30th. This was the opening meet of the 1946 season, and with fine weather everybody had a good time. The group holds track meets on the third Sunday of each month at their permanent track, located adjacent to the Teterboro Airport in Hasbrouck Heights, N. J.

Visitors are cordially welcomed at any of these meets, and the boys who put electric motors in the fireboxes of their little locomotives are particularly invited to come down and instead see real coal being shoveled in, and to feel the thrill of being pulled along by a real live steam loco! For information, contact George Taylor, 96 Perrin Avenue, Pompton Lakes, N. J.

Scenes from the Eastern Live Steamers' track. #1—General view of south end track. #2—Harry Fisher with his 2-8-8-4 Yellowstone Mallet. #3—Joe Tracy firing George Taylor's 0-4-0 switcher. #4—Harry Hansen with his 4-6-2 2½" gauge Pacific. #5—"Taking them home." #6—Herb Hild at the throttle of his 4-6-2 3½" gauge Pacific. #7—Ed. Gilson's 4-6-2 2½" gauge Pacific. #8—Another view of south end of track. The engine in foreground is E. Lockwood's 4-6-4 Hudson. #9—Looking over Joe Pedraut's 2-8-4 Erie Berkshire.

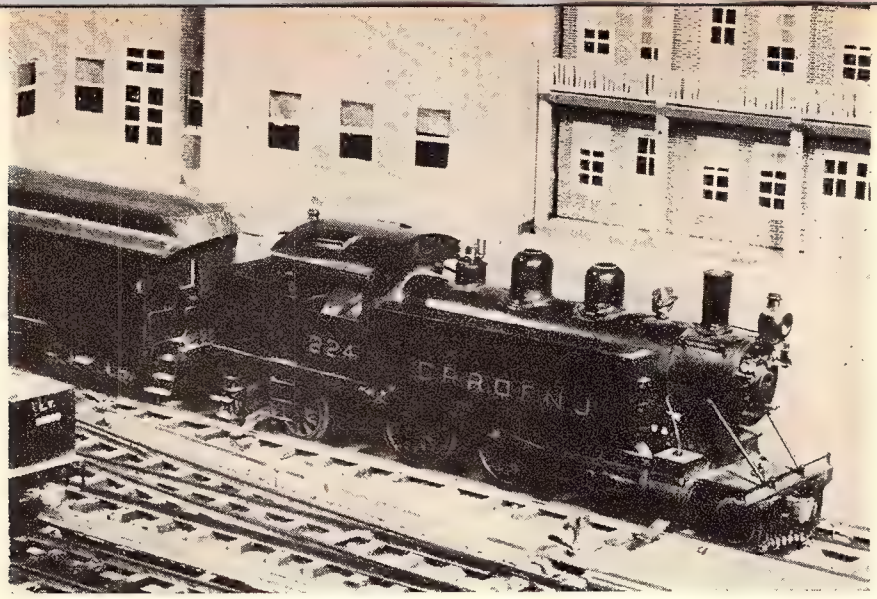


Photo by Haddad

SUBURBAN DOUBLE ENDER

By WARREN B. CRATER

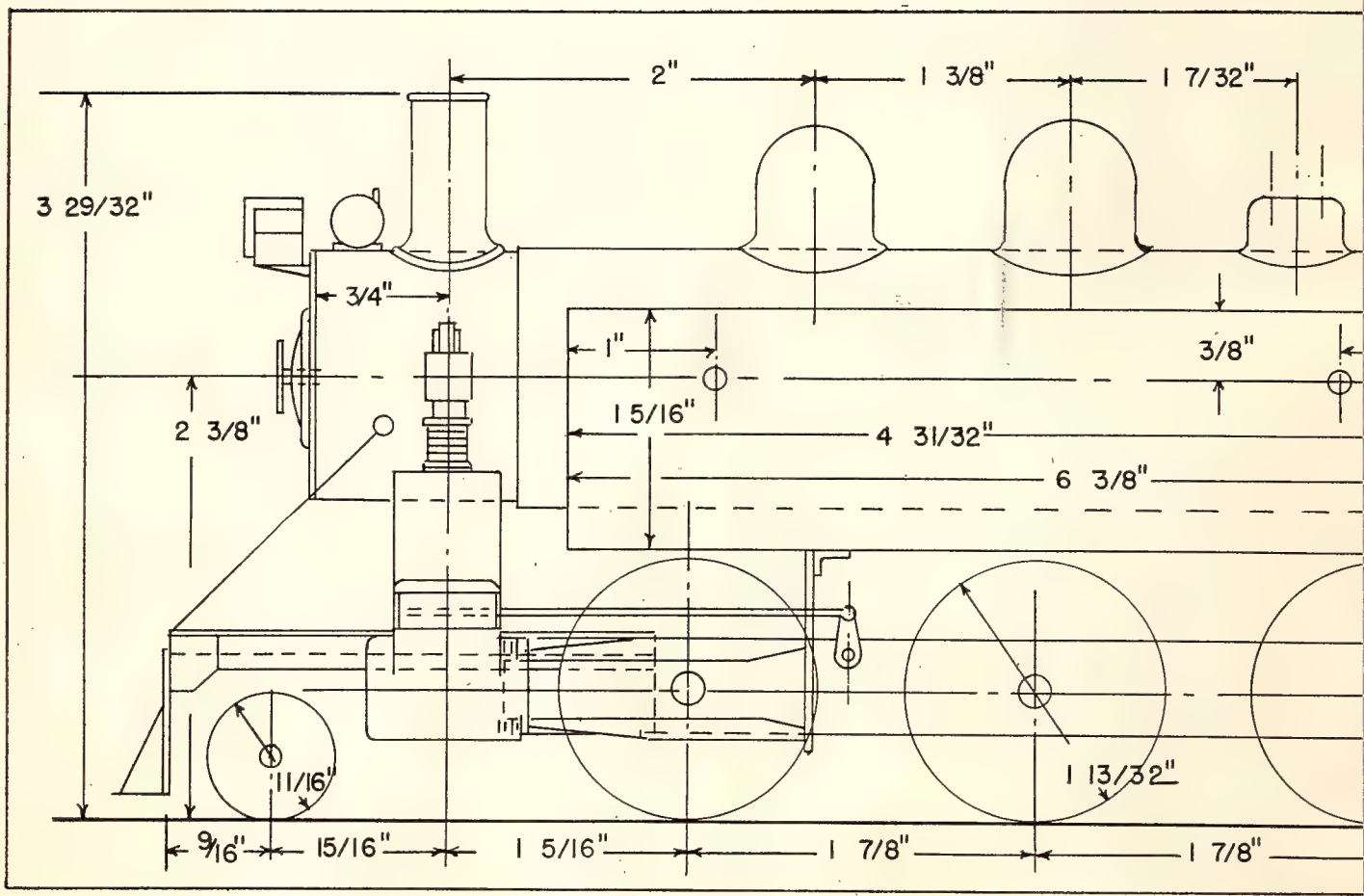
THIS may well be considered posthumous, as the last of the prototypes were scrapped last year, however, my memory of firing them and running the last two on local passenger trips can never be erased! Numbers 220 to 224 were originally Long Island #20 to 24, the others were built for the C. N. J., carrying the same numbers during their existence.

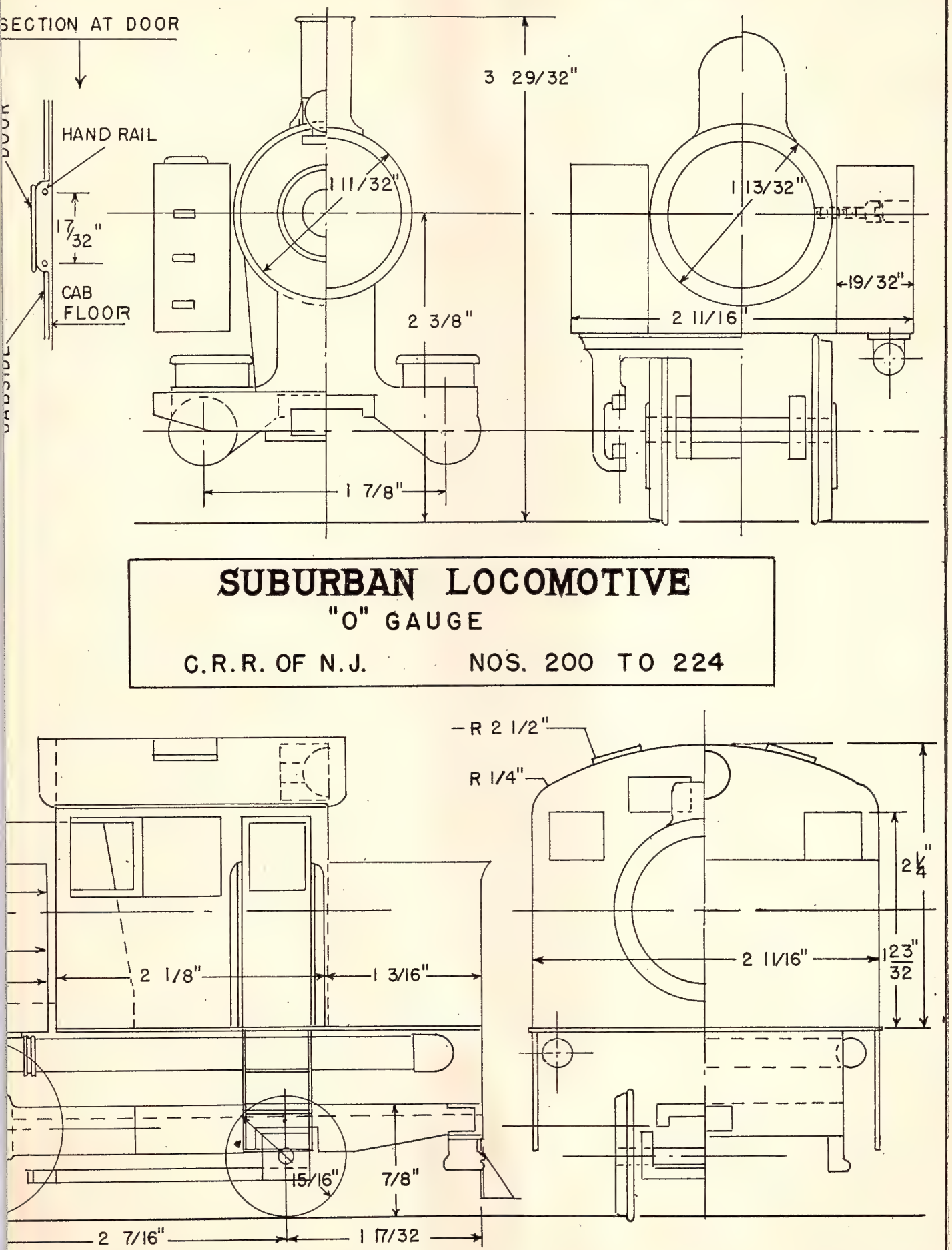
Some were rebuilt with piston valves and superheaters. All were equipped with generators and electric headlights in 1918, with steel pilots replacing the large wooden ones at about the same time. Accompanying drawings show the original slide valve engine as in the 1930's.

Frame construction is the same as described for the 4-4-2C (July, 1946). The type motor drive to be used will determine the cross spacers in the main frame and brackets for the side tanks.

Boiler, tanks, cab and coal bunker should be built as a unit which may be removed from the frame by unscrewing tanks from brackets and expansion sheet at back of coal bunker from breast beam. Arrangement of motor and gears should locate the motor in the cab. The boiler need not be extended into the cab as shown on the drawing. The reverse switch may be located in the coal bunker.

The slide valve cylinders may be built up using ½ x ½ square brass tube or solid brass, the top face forming the valve seat. Lay out cylinder centers, steam chest centers and frame seat. Cut and file to size, drill #48 and tap 2-56 at both cylinder and steam chest centers. Lay out two brass sheets 1/32" thick for front and back and drill #43 for cylinder centers. Fasten in place with 2-56 machine screws. Cut the steam chests from 3/16" x ½" brass 9/16" long. File the corners round and drill #43 through center. Cut the covers from 1/16" thick brass to extend 1/32" over the steam chests on all





SUBURBAN LOCOMOTIVE

"O" GAUGE

C.R.R. OF N.J. NOS. 200 TO 224

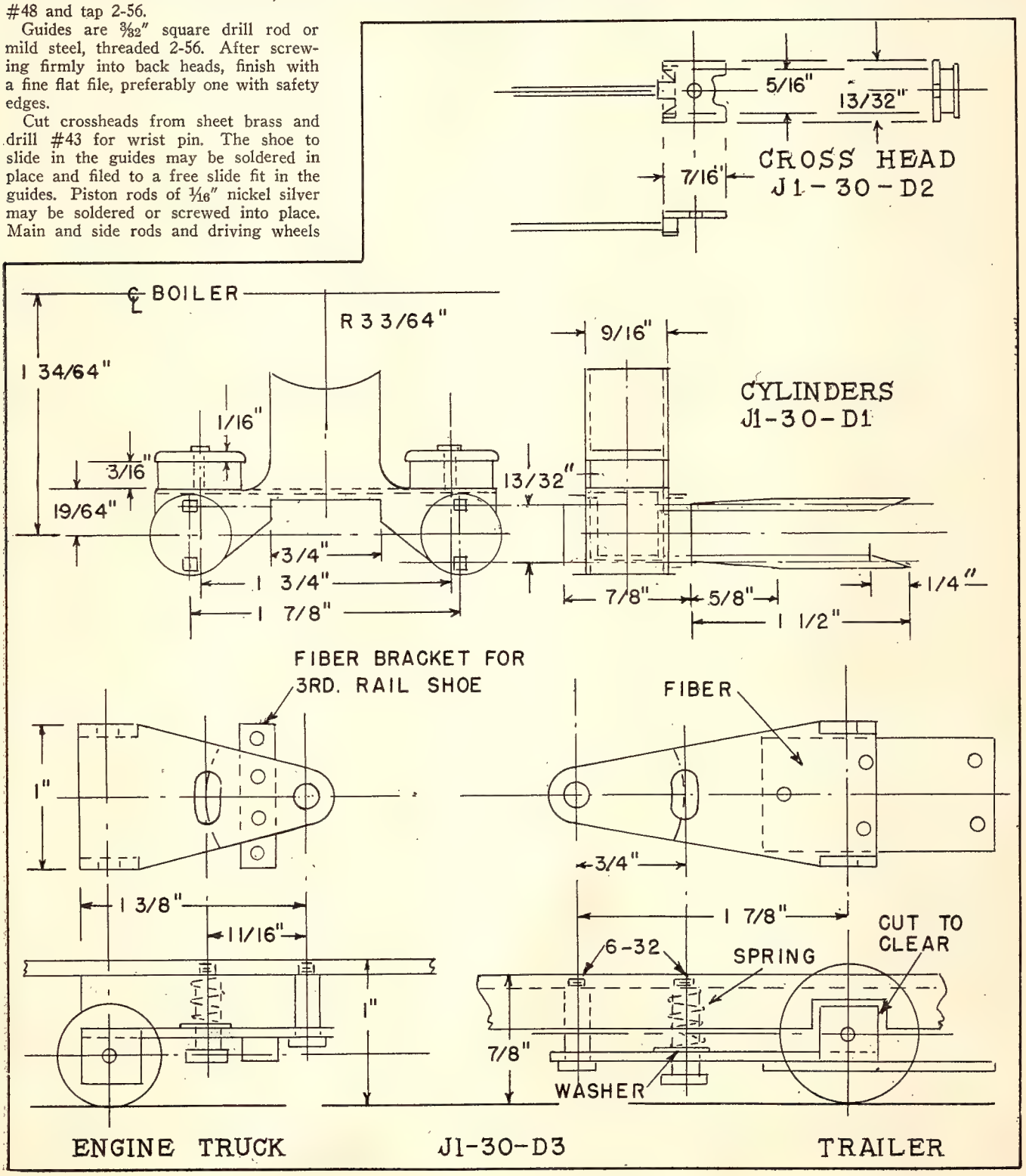
sides; drill #43 at center. At the back center, drill #59 to take the ends of valve stems; using 2-56 x 3/8" brass machine screws in assembly. Turn the cylinder heads from solid brass, and drill centers #43. Screw them in place and solder the entire assembly. Cut thin brass or tinplate to 9/16" wide and solder on to form the sides of the saddle and cylinders. File off screw heads in front cylinder heads; also file down screw heads in steam chest covers to form choke plugs to which tallow pipes may be soldered. Remove screws at back cylinder heads. Lay out on back heads for guide centers and in frame seat for frame bolt; drill #48 and tap 2-56.

Guides are 3/32" square drill rod or mild steel, threaded 2-56. After screwing firmly into back heads, finish with a fine flat file, preferably one with safety edges.

Cut crossheads from sheet brass and drill #43 for wrist pin. The shoe to slide in the guides may be soldered in place and filed to a free slide fit in the guides. Piston rods of 1/16" nickel silver may be soldered or screwed into place. Main and side rods and driving wheels are built up as described for the 4-4-2C to the dimensions shown on the drawings.

Since this engine has no tender and consequently is short, it is desirable to place the third rail shoes as far apart as possible to span the gaps. They must remain nearly centered on the track, so truck mounting was the logical answer. With my own model, this arrangement has given ten years of trouble-free operation.

Engine truck and trailer frames are made from 1/2" x 1" channel brass, the principal dimensions being given on the drawing. The trailer frame is inverted to allow clearance. Note that the sides of the frame cradle should be cut to permit lateral movement of the trailer on curves. The best method of mounting to frame is with 6-32 shouldered screws, however, a smaller screw with washer and piece of tube may be used. It is most important to make the length of the fulcrum screw or king pin just long enough to keep the truck frame in a horizontal position on level track. Use a washer to keep the spring from working through the guide slot. The spring should be just strong enough to overcome third-rail shoe pressure and put a little weight on truck wheels. I have found this to be the only sure way to prevent derail-



ment of all engine trucks.

Fiber mountings for third rail shoes are shown in their approximate location. This will depend upon the particular shoes used, the front one to extend out under the middle of the cylinders and the back one between trailer wheel and cast step on the breast beam.

The boiler barrel can best be made by turning heavy gauge brass tube in the lathe; 1½" O. D. with ⅛" or thicker wall is available. Since the side tanks cover the firebox and cab space is needed for the motor, the boiler can be reduced to a simple turning job. Where the drawing shows 6⅜" from cylinder center line to back boiler head, use 5¾" from cylinder center to outside front of cab. Turn the barrel to 1 13/16" O. D. and the smoke box 1 11/16". Scribe the longitudinal center lines before parting off, as described for the 4-4-2C. Stacks and domes are also made up similar to the Atlantic.

The side tanks are best made from solid brass. More than likely you will not be able to obtain 19/32 x 1 5/16" stock. I used 5/16 x ⅝" and ⅝" x 1" sweated together to make ⅝" x 1 5/16" and set them tight against the boiler barrel. Use 2-56 brass machine screws to hold the pieces when sweating. Drill #43 through the small piece and drill #48 and tap 2-56 in the larger piece, so located as to be used in fastening to tank brackets on main frame when assembling. If screws cannot be backed out after sweating, tighten until they break and then drill #43 deep enough to tap 3-48 for bracket screws.

Use iron machine screws #3-48 or larger to fasten tanks to the boiler. Drill through tanks and tap in boiler on center line, counterboring to permit screw heads seating half-way through the tanks. Use drill size of available round brass rod which is soldered in the remaining hole and file off flush with the tank.

Both the cab front and back may be cut from sheet brass. Quite likely, the bottom part of the back sheet will have to be omitted to accommodate the motor, also part of the front cab sheet and possibly some of the boiler barrel will have to be cut away. The cab front should be screwed or soldered to the boiler, allowing for the thickness of the cab floor, the bottom of which is on a line with the bottom edge of the tanks. Cut the expansion sheet and fasten to the back breast beam with two machine screws tapped into the breast beam. Screw tank and boiler assembly to brackets on frame. The cab floor should be cut to extend 1/32" beyond the cab sides and expansion sheet. Cut out as necessary to sufficiently clear the motor so the boiler, cab, etc., may be removed for repairs. The cab sides and coal bunker sides should now be cut out. Note the space for hand rails at the lower portion of the doors. (*See section at door on drawing.*) The quarter-round section housing and hand rail may be sawn from ¼" round tube or cut and bent from sheet and soldered in place. The doors cut from sheet may be soldered to these. The hand rails, #66 brass drill rod, should extend through drilled holes in the cab floor and are soldered underneath and also to the sides above doors. Solder the sides to front and floor, also solder cab back in place. The back sheet of the coal bunker can now be cut and soldered in place from the inside. The reverse switch may be placed inside the coal bunker with the handle extending out the top. The cab window sash should be soldered to the inside of the cab side, as the windows could not be fully opened. Cab roof and ventilators are cut from thin brass or tinplate, bent and soldered in place.

Water pipes connecting the side tanks may be made of ¼" heavy wall tube. In making the bends, file a 90° notch on the inside about two-thirds through, bend and solder. File off the bulge at the sides of the bend and cut off to length. To represent the flange joints, wire may be soldered around the tube or brass turnings may be used.

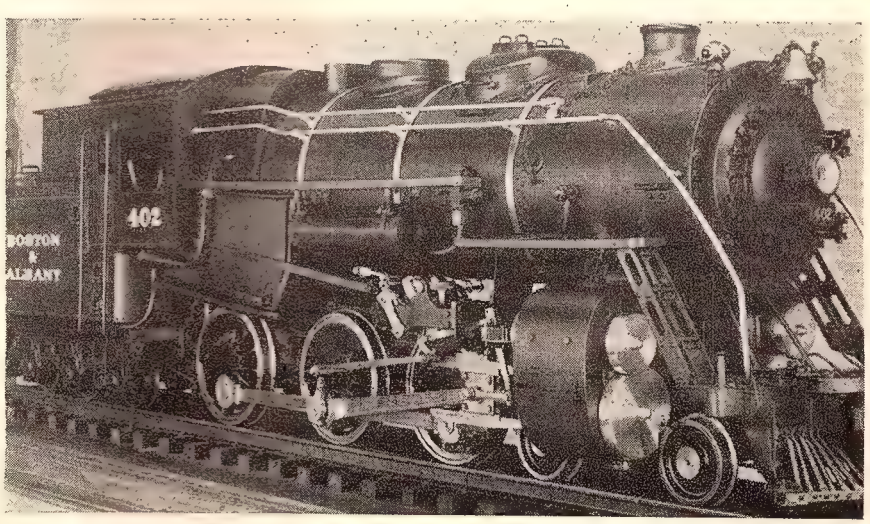
Ladders under the cab doors are of the same material as used for car steps, usually a brass strip 1/64" x 1/16", cut, bent and soldered. The air pump is Westinghouse 9½" single stage. Castings may be used, or it can be turned from brass.

The drawing indicates electric headlights and generator as used in later years. When oil headlights were used, the front light was located where the generator is shown, and the back light was outside the cab on the same level as the electric light shown. The outline of pilots as shown are for the later steel units.

Since this engine was originally designed to two-way operation, it will be right at home in point to point passenger service, where no turning facilities are available. My model runs between the main terminal and a local station. All facilities are available at the terminal, so the engine is "head on" leaving there. Arriving at the local station end of its run, it pulls into the passing siding where the cars are cut off. The engine comes down the main and couples to the other end of the cars. Returning to the terminal, it runs backward. It is natural to assume that the train consists of an open platform coach and combination, complete with a pair of marker lights which are changed to the rear end for each trip.

As many railroads have used "double enders" of as many different designs, in each instance adding to the local color, this article is intended to suggest possibilities as well as to present this particular engine. The reader's suggestions and criticisms are cordially invited.

Here is a novel car built by Warren Charles of Hagerstown, Md., built for cleaning track. Tank to the right holds carbon-tetrachloride, with an opening at top for filling tank. Fluid runs out of turn-off in center to a pan, then down two tubes under the car where a half circle of brass is fastened to either tubes or a wick. Wick can be fastened with paper clips for easy removal during wick changes. Warren claims it cleans his track very well.



She's a beauty—an exact 1/16-scale replica of a tank type engine used by the Boston & Albany on their commuter runs, built by Mr. E. W. Clem, of Shrewsbury, Mass. It took over four years to build this 200-lb. live steamer. Ten miles per hour is nothing for this baby that runs on 3½ inch gauge track.

STATIONARY STEAM ENGINE

part three

By LEWIS AUSTIN

NOW that your steam engine is beginning to take shape, the work should get more interesting. The flywheel is turned out of steel or brass on the lathe. Cast iron could also be used for this part, but will not take as high a polish as the other metals. One thing that gives a model engine a nice appearance is a highly polished flywheel, so be careful to get a good finish on it when turning it. The better the finsh, the easier it will be to polish the finished wheel. Use stock that is slightly over 2" in diameter and mount it in the lathe chuck. Face one end off, turn the hub and recess on the front of the wheel. Do not drill the hole yet. Reverse the wheel and hold it in the lathe chuck by the hub. Face off the back of the wheel and do not overlook the 1/32" step shown on the drawing. Turn the diameter of the wheel to 2" and drill and ream the 5/16" hole. Remove wheel from lathe chuck; drill and tap the 4-40 hole in the hub. Use an allen head set screw to fasten the flywheel to the crankshaft.

A buffing wheel mounted on the lathe will facilitate the polishing and will give a much finer polish than that obtained with emery cloth. If your wheel was made from brass, it would be advisable to use clear lacquer on it after the wheel is polished. This will keep the wheel from tarnishing and will keep the high polish indefinitely.

Make the eccentrics from 3/4" diameter steel. Mount the stock in the lathe chuck and cut the 3/32" wide slot about 1/16" deep. Cut the eccentric off to the length as shown. Repeat procedure for both eccentrics. Drill and ream a 5/16" diameter hole through each, 1/16" off center. The eccentrics can then be mounted on a 5/16" nut arbor and the hubs turned down in the lathe. Drill and tap the 4-40 holes through the eccentric hubs and they are completed. Mount them on the crankshaft with 4-40 allen head set screws to avoid mislaying them.

Pistons can be made of either brass or steel. A displacement lubricator on the steam line will keep the piston and cylinder block from rusting. Naturally, if you are building your model entirely of brass you will not be troubled with the parts rusting. It is still a good idea to mount a lubricator to help the engine run easier.

Turn the pistons to dimensions shown on the drawings, not overlooking the recess in the bottom. This provides clearance for the bottom cylinder head. The 1/8" groove around the piston is not very fussy for it is not intended for a metal piston ring. Instead the groove is filled with graphited water pump packing of the type used in automobiles. This packing makes the piston fairly steam tight and serves our purpose well. The diameter of the piston should be a nice sliding fit for the cylinder bores. If your bores are not exactly alike, it will be best to make the pistons to fit them and then stamp a number on each piston to correspond with a number stamped alongside each cylinder bore. This will eliminate any trouble matching up pistons with their respective bores when assembly takes place.

The piston rods are cut to length from 3/16" diameter drill rod, and threaded as shown on the drawing. The piston is held on top of the rod as you can see by looking at the photo. Take the top heads off the cylinder and mount the pistons in the cylinder bores. Make certain you put packing in the piston grooves. The top cylinder heads can then be screwed back into place.

The slide valves are a straight milling job so you will have to use the milling attachment on the lathe. Use bronze for these parts and start by cutting them square to dimensions shown. The 1/32" deep recess in the bottom of the slide valve is then cut out with a small end mill. Try to work as close as possible to dimensions given. The thickness of the slide valves has to be exactly the same as the thickness of the steam chests. This is necessary to keep the valves pressed as firmly as possible over the steam ports.

Now you can mill the slots across the slide valves. Note that one slot is 1/8" wide and the other 3/16" wide, and also that the 1/8" slot is not as deep as the other. After these are cut, mill the angles on the sides and file a radius in each corner as shown, which will complete the slide valves.

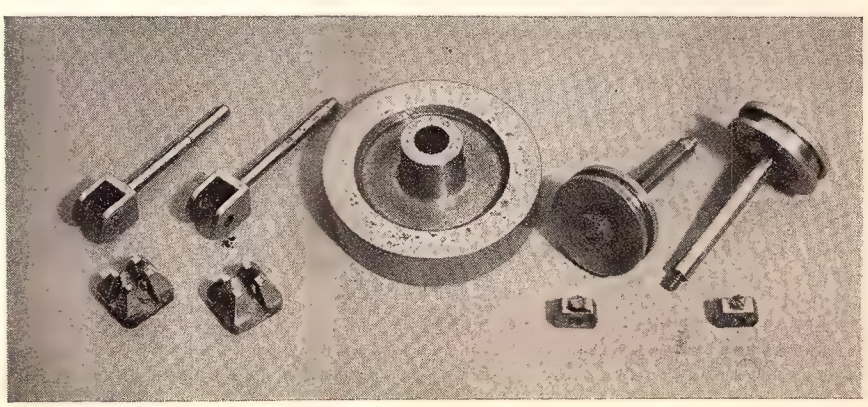
The valve rods can be cut to length from 1/8" drill rod, and threaded 4-40 on one end. The yokes at the ends of the valve rods are then cut out of 1/2" square brass or steel stock. Cut the pieces to length and mill the 3/8" wide slot through them. Drill the 1/8" hole and then drill and tap a 4-40 hole in top of each piece. The valve rod is then screwed into place and silver-soldered securely.

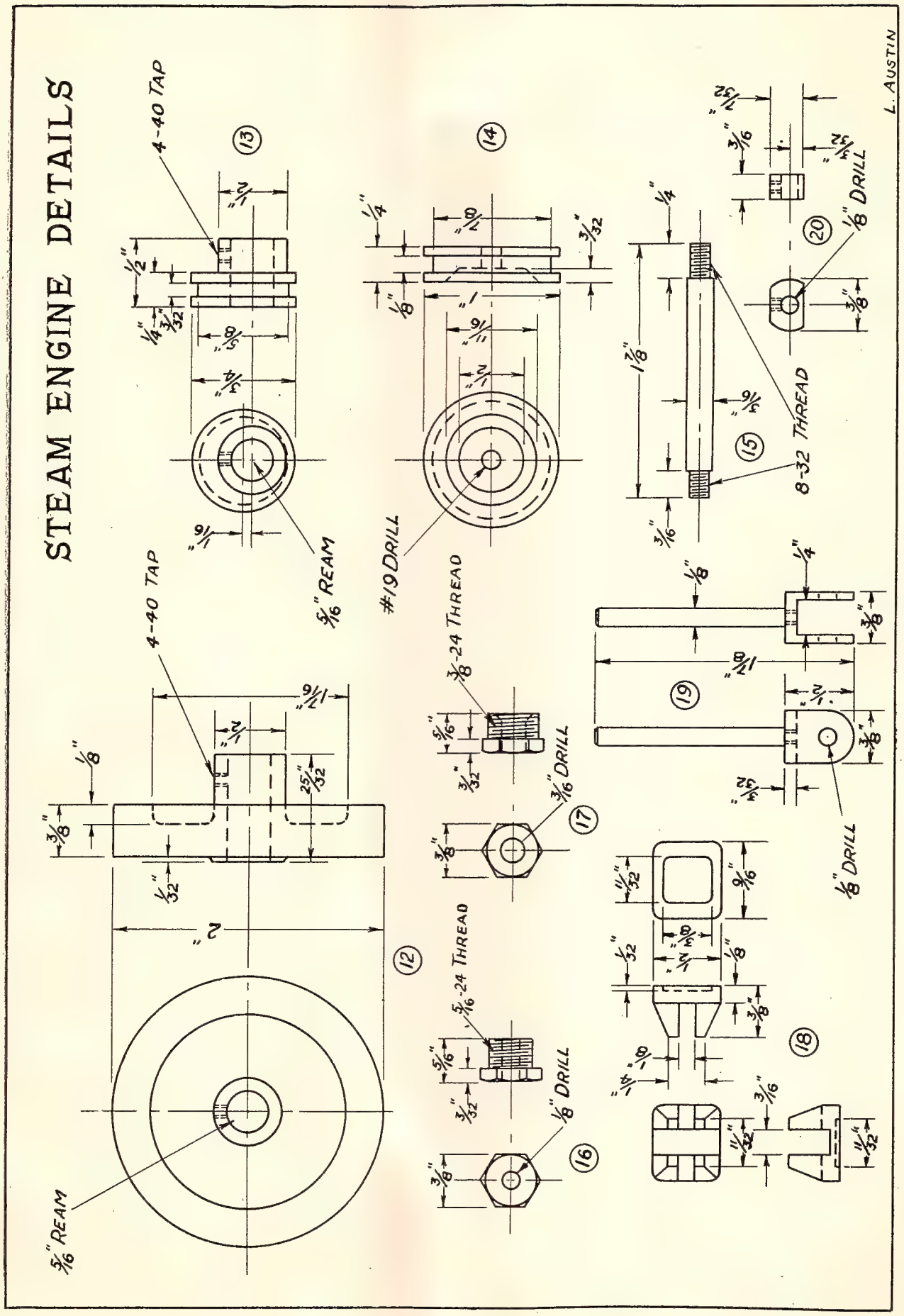
Two adjusting collars are then made as shown, wide enough to fit snugly in the 3/16" wide slots in the slide valves. It is very important that there is no play at this point. Drill a 1/8" hole through each collar and mill or file the flat as shown on the edge of each collar. The 4-40 set screw hole can then be drilled and tapped.

Gland nuts are made from brass hex stock. If this material is not available, it is possible to cut round stock to the shape of a hexagon with the milling attachment. Cut the stock to shape first before turning the glands as it will be hard to mill the shape later. As you can see by the drawing, the gland nuts are simply nuts threaded on one end and bored out to provide space for the packing. Four nuts are required, two for the bottom cylinder heads and two for the steam chests. Both types of gland nuts are made out of the same size stock and are similar with the exception that one type has a 1/8" hole through it for the slide valve rod and the other has a 3/16" hole through it for the piston rod. The gland nuts require care when turning and threading them, for there must be a tight fit in the bottom cylinder heads and the steam chests so that they do not work loose. The 3/16" and 1/8" holes through the two types of gland nuts should be slightly oversize for the rods. Do not make them too big, merely about .005 larger than the diameter of the rods.

The same packing used in packing the piston grooves is also used to pack the gland nuts. Pack the nuts on the bottom cylinder heads and screw them in place. The gland nuts on the steam chest cannot be packed until the side valves are assembled inside the chests. Screw the gland nuts in place and insert the valve rods in the holes. Now mount the slide valve collar in place on the end of the rod. Just fasten the collar on in any position now for the slide valves cannot be set until the complete engine is assembled. Pack the gland nuts on the steam chests and screw them up tight.

(*Continued next month*)




STEAM ENGINE DETAILS
L. AUSTIN
4-40 TAP
5/16" REAM
#19 DRILL
8-32 THREAD
1/8" DRILL
3/8-24 THREAD
3/16" DRILL
5/16-24 THREAD
(12)
(13)
(14)
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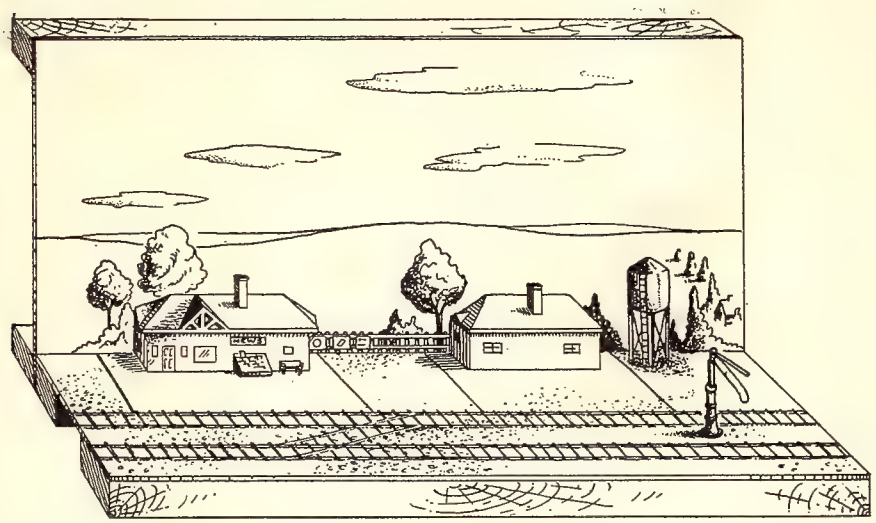


A SIMPLE DIORAMA
for Photographing your Models

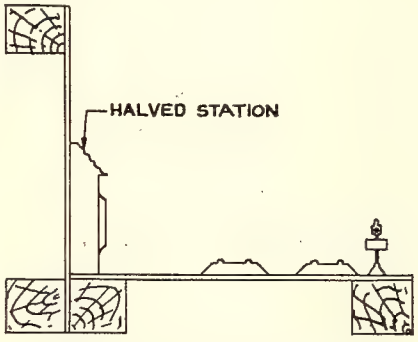
By *IRVING N. BLACKBURN*

AFTER having built a fine locomotive or car, there are many of us who have yearned for a suitable setting to be used specifically as a background for taking trick photos or angle shots of our model. This holds true particularly for those of you who like to combine photography with model railroading.

With this simple display diorama, it is an easy matter to place any model on it that you wish, and take high level, low level or angle shots that would be quite impossible on your own layout. In fact, you can do most anything you try with it. An additional feature about this diorama is the fact that you can change the setting very easily by changing the buildings which compose the background with those of your big layout. For example, the setting described shows a station scene, including a typical country depot and freight station as well as the usual water tower. It is a very simple operation to remove these three structures and replace them with a factory or some other industrial plant. Here then, would be an ideal setting for taking a shot of your latest reefer or other freight car, the whole operation of changing the scene taking only a brief minute or two.

For the basic structure and the scene about to be described, you should have two pieces of ¼" or ½" plywood 18' x 3'; 4 pcs. screen stock 3' long; 12' HO rail and tie strip, an HO station and one tube of Prussian blue.

Drill the plywood for wood screws spaced about 6" apart all along its entire length, top and bottom. Fasten to the screen stock as shown in fig. 1. Both sections are made in the same manner, the baseboard being 3' deep and the background 3' high. The length of the diorama is optional, depending largely upon your own needs. The more equipment to be photographed, the longer the diorama should be. For the average man, make it from 4' to 6' long, more to be added if necessary. Fasten both sections together with either screws or bolts, fig. 2.



Shellac both sections well on all sides as protection against dampness. For actual work, the sections should be worked on while separated, to be later assembled together. The background should be worked first. Before starting, let me remind you that you don't have to be an artist to get a realistic background. Anyone can do it including yourself. Add a *very small* bit of Prussian blue to some flat white paint and mix well. Make certain it is properly blended otherwise tiny dark blue streaks will show up later in the background. Paint the entire background with this mixture and set aside to dry. When thoroughly dry, mark the horizon line as you wish it to be, that is if you prefer a mountainous background, mark it accordingly.

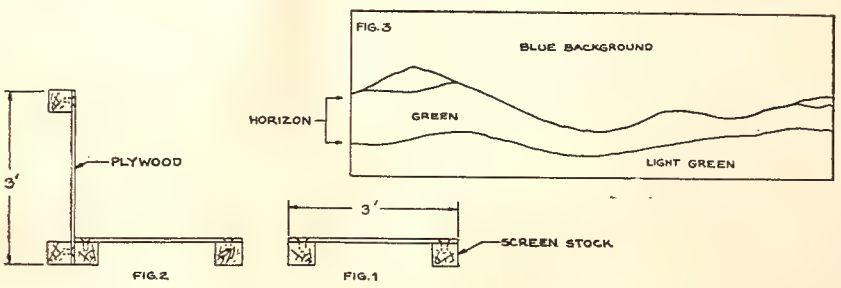
Any color used on the background should be mixed with the same flat white paint. If it is a mountain scene, I suggest making the tops of the mountains a deeper shade of Prussian blue than the background, giving the effect of distance and then following up the next portion with a fairly dark flat green, and the foreground a much lighter shade of green.

Now we need some buildings for the setting, so select some type of station to suit your particular needs. I recommend a kit for this as you have to cut it into sections for use on the setting. For my own diorama, I took a well known kit and built it to manufacturer's specifications. Build it strong, gluing it well with airplane cement. After completion, take a new single edge razor blade and cut it into two equal parts lengthwise.

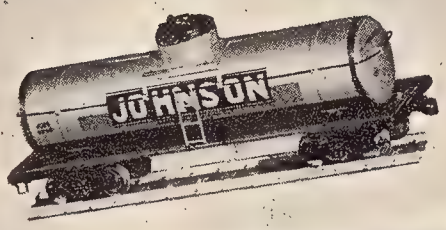
The station shown in the sketch, when cut into halves gave the entire front side for the passenger station with enough left to make an excellent freight station as well. In placing them use your imagination and recall different country station scenes for location. Fasten them to the base and back with cement if you want a permanent station scene. Otherwise, you should use some means for holding them only temporarily, allowing for easy removal when you desire a different scenic effect.

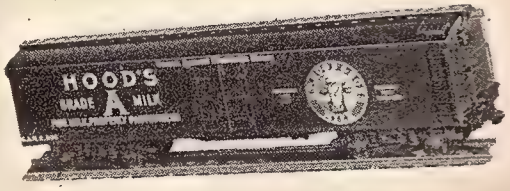
Lay whatever track section you wish on the platform, the simplest being a double track. On my own diorama, I laid two switches as a crossover, since I want the added detail of a manual switch stand with their targets and lanterns. Ballast the track if you wish; a simple method eliminating loose ballast would be to mix a small quantity of lamp black with powdered casein glue mixed with water, and this mixture brushed well into the ties and sides of the rails. It will dry a dirty gray color which closely resembles ballasted roadbed.

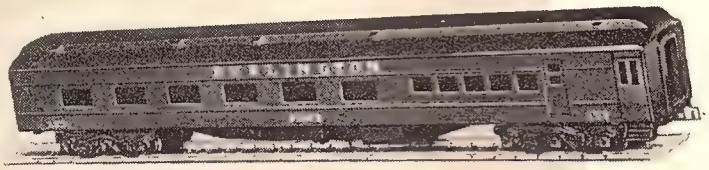
As seen in the sketch, there is a passenger station, a freight depot and water tower with a standpipe between the two tracks. By having the standpipe, one can place locomotives in various positions for photographing. Add plenty of small details such as men and women around the station, express and baggage trucks, miniature boxes and barrels, as well as sign boards all along the fence in the background. *Get real action into the scene!*



We're doing everything possible to bring you MORE *Scale-Craft* Models







We had hoped to have motive power and rail available April 1st of this year, but so far our suppliers have disappointed us. The present shortage of materials and parts makes it difficult for us, at this time, to supply you with all the models you'd like to have. But we're doing our best to produce the cars and locomotives you want.

All we can do now is ask for your patience. Remember that Scale-Craft Models, precision-scaled for intricate detail and true-to-life realism, are well worth waiting for.

Keep in touch with your dealer for information on available Scale-Craft Models. He can supply you now with a complete line of accessories and . . .

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Passenger Cars	Box Cars
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Hoppers	Diners
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Cabooses	

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Auto Cars (Z-Bar and single sheath)

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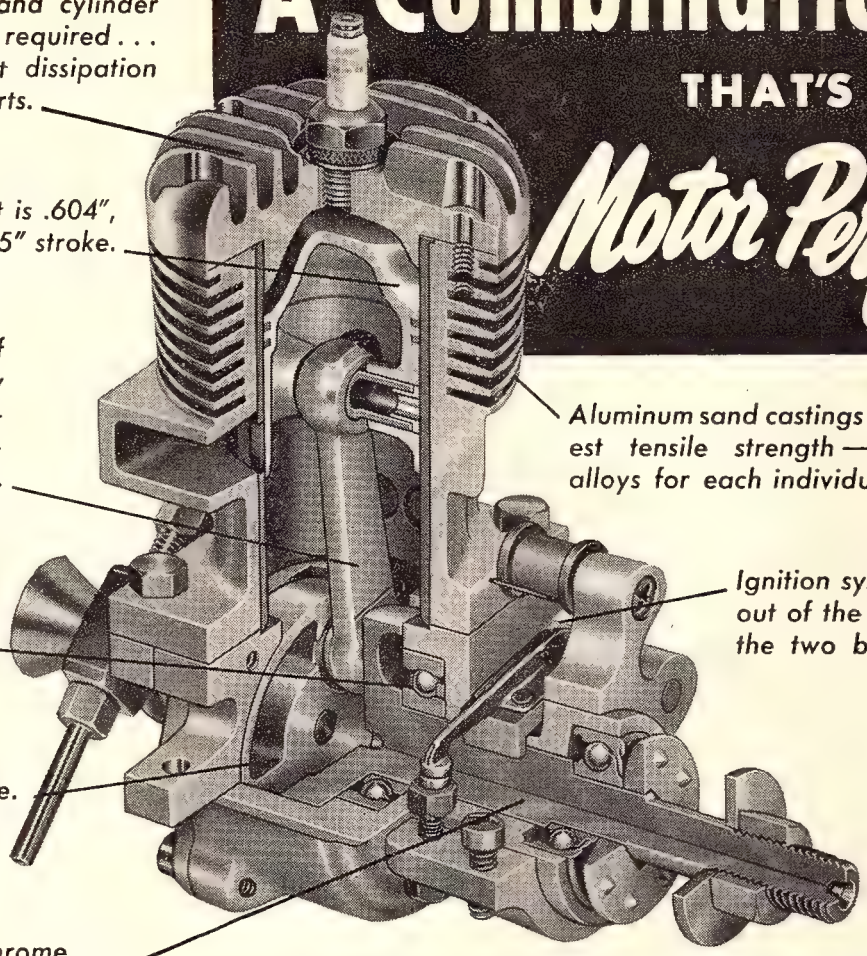
A Combination THAT'S Motor Perfect



Cylinder head and cylinder joint, no gasket required . . . result, better heat dissipation between two parts.

Piston displacement is .604", bore is .940" by .875" stroke.

Connecting rod made of special aluminum alloy drop forged and heat-treated for highest possible tensile strength.

Full ball-bearing crank shaft.

Disc type of rotary valve.

Crank shaft of chrome molly steel carborized (not ordinary screw stock).

Aluminum sand castings of highest tensile strength — special alloys for each individual part.

Ignition system mounted out of the way between the two bearings.

- **Only engine to: develop .85 horsepower at 14,000 r.p.m.**
- **Guaranteed 90 days against defective workmanship and part breakage.**
- **Holds all speed records for U-control aircraft, Class D and E speed boats, bevel gear streamliner race cars, bevel gear prototype race cars and spur gear streamliner race cars.**
- **All engines tested and claims proved on miniature dynamometer or electric prony brake.**
- **Numerous reports of logged time on race cars of over 800 hours.**

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FIRST . . . see your local hobby dealer. If he does not have HORNET motors in stock, we will ship direct from factory within 24 hours of receipt of order. Send your name and address and those of your hobby dealer with order. California purchasers add 2½% Sales Tax.

CABLE NATIONALS

HOWARD LEE SETS THREE NEW WORLD RECORDS IN PROTO CLASS. JOHN CROSSAN TAKES SPUR EVENT WITH 115.38 MPH—JIM GILMORE CLEANS UP STREAMLINERS AT 104.98 MPH!

SPINDIZZY fans from all over the nation collected at Detroit on July 30th through August 3rd to attend the Fourth AMRCA National Championship Races. It's all history now, and without doubt the most successful ever held. The weather was perfect the entire five days, and many a fan went home with a red nose from the hot sun (no cracks, please!). Distance meant nothing, for the boys from the east, south and west were well represented, together with a full showing of the mid-west. Fran Brennan, newcomer to the racing field, came up from Monroe, Louisiana. Fran is quite a colorful figure and the boys at the Nationals will never forget his enthusiasm. "Woody" Woodward, Wilmer White, Jim Gilmore, Ira Hassad, and Andy Anderson made the trip from the west coast to take in the event, and went home with more than their share of the bacon. The east coast boys were there in strength, several of them making the trip by car. Ye eds flew in from New York to cover the races and thoroughly enjoyed themselves with a grand bunch of guys.

Tuesday, July 30th, day before the official start of the Nationals, the boys were out at the track, working the last minute "bugs" out of their iron and getting the feel of things, all for that last ounce of speed!

Two Beautiful Tracks

These Detroit boys have a beautiful layout located in River Rouge Park, just outside the city. The plant consists of two 1/24 mile tracks, timer house, plenty of pit space and picnic grounds. Center posts were equipped with seat and protective umbrella for the "horsers." Ken Held and his crew are really to be commended for such a well-planned event. They all worked hard and deserve credit! One track was used exclusively for Spur Gear cars, with the other being used for both Protos and Streamliners, both tracks being used simultaneously. In this manner, all events were systematically run off without loss of time.

There were 111 entries in all, everyone a hot contender for those high spots. Proto cars really came into the limelight, with Howard Lee, of Fresno, California, establishing three new world's records in this class, knocking out a sweet 111.52 MPH for the 1/4 mile, 107.97 MPH for the 1/2 mile, and 109.02 MPH for the one mile, with a car of his own design. These protos are getting so fast, that we might as well compete 'em against the spur babies! High speed in spur gear went to John Crossan, of Rock Island, Illinois, who turned in 115.38 MPH with his Hornet powered V-car. Jim Gilmore, of Fresno, California, made a clean sweep of the track in the streamline class with his Hornet-powered special at a neat 104.98 MPH.

Action and tough luck highlighted the three days of running prior to the finals. In the very first heat of the 1/4 mile spur event, Bob Dunkly wrecked his connecting rod. With the wrist pin boss off, the remaining part of the rod tried to split itself in half by going up the transfer port and the cylinder at the same time. Result—he was left with half a connecting rod resembling a peeled banana! He practically rebuilt his motor during the next two days of running, using borrowed parts from any number of his fellow racers. In spite of this, he came in 10th position in the mile event with a neat 107.59 MPH.

Old man gloom really dogged the steps of "Champ" Warren Borden, of Zion, Illinois. Warren is the lad that set the spur gear record for 1/24 mile tracks with 116.13 MPH at the Waukegan track on June 23rd, consequently, he was being closely watched. Borden took the 1/4 mile event with 115.38 MPH, boosting this mark in the 1/2 mile event to 115.97 MPH! By this time, he was just hitting his stride and ready to set a new record in the mile event. In the very first heat, Borden shoved his iron off and really had her wheeling around the concrete. All the boys realized a record was being set, and had their eyes glued to the track. According to several stop watches, his car was stepping around at better than 117 MPH! Going into the second quarter of the mile, a tire broke and tore part of the body completely off the car. What happened is one for the books! Both Borden and "Woody" were kneeling together with one eye on the car and the other on the stop watch, just as the car took off from the track and zipped between! (Woody claims he wasn't scared, but two to one says he has more insurance now!) Borden really showed his sportsmanship, for he walked off the track determined to repair the damage and enter the finals in the morning. The fine cooperation offered Borden by the boys themselves, speaks well for the game!

Along came Saturday, Aug. 3rd, the day of the finals when the top three men in all events would compete for National Championships. John Crossan, of Rock Island, Ill., copped the spur event with his Hornet-powered V-car with 115.38 MPH. George Coffield, also of Rock Island, came up to take second in spur

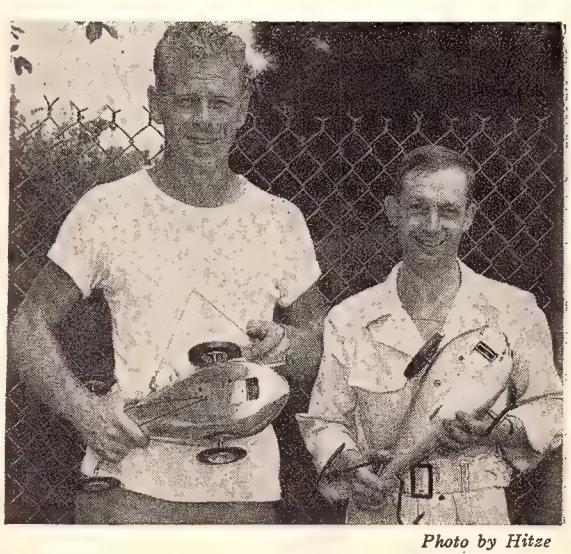


Photo by Hitze

Meet the winners of the final spur event. Left to right—John Crossan, Rock Island, Ill. (1st place); Wilmer White, Ontario, Calif. (5th place); George Coffield, Rock Island Ill. (2nd place); Fred Lunning, Island Park, N. Y. (3rd place); Warren Borden, Zion, Ill. (4th place).

Photo by Hitze

Members of the Detroit Miniature Race Car Club. These boys worked hard to make the Nationals a success.

Photo by Hitze

These fellas traveled from the west coast to take in the Nationals and took home a good slice of the bacon. Top left—Ira Hassad, Woody Woodward, Jim Gilmore and Wilmer White. Lower left—Edwin Skilling and Andy Anderson.

with 113.49 MPH. Borden tied Fred Lunning, of Island Park, N. Y., for third position with 113.20 MPH, but true sportsman that he is, conceded this spot to Lunning, who really earned it! Wilmer White, of Ontario, Calif., placed fifth with 111.38 MPH.

In the final run-offs of the proto class, all four top places hit over 107 MPH. Howard Lee, of Fresno, Calif., set a new world's record with a Hornet-powered car of his own design, wheeling it around at 111.52 MPH! (Proxy by "Woody.") Wilmer White, of Ontario, was right on his heels with 110.70 MPH with a McCoy-powered Fox car. Close behind was Woodward with his own Hornet-powered job at 110.15 MPH. C. A. Keane, of Brownsburg, Ind., sent his new Pacemaker proto, powered with a Hornet, around the stretch at 107.41 MPH. Dale Martell, of Detroit, ran into trouble with his job and had to pass his turn.

In the streamline finals, Jim Gilmore, of Fresno, Calif., walked off from his competition with 104.98 MPH. He was racing a special built job powered with a Hornet. Jim Booher, from Detroit, his closest competitor, did 86.45 MPH with a car of his own design.

Headquarters for the Nationals were located in the Ft. Shelby Hotel, where for the first time since 1942, AMRCA members had the opportunity of meeting together and jointly discuss the growth of the hobby, rules and regs and any contemplated changes. Thursday evening, following the ½ mile events, the boys all got together in the Blue Room to hold an open discussion prior to their main business meeting the following night. Standard Machine Co., of Indianapolis, makers of the new Pacemaker Proto, very graciously reserved this room for the use of the AMRCA members during their stay in Detroit. They also supplied cold soda for the boys during this meeting which sure hit the spot. The resignation of Bob Dunkly as secretary of AMRCA came as a surprise to all. Bob has worked hard through some very trying times. Ed. Fitzgerald, of the Long Island Club, was suggested as a good man to take over the job for the balance of the term until the elections take place. A telegram to this effect was immediately sent him. The following night, at the Annual Business meeting, his telegram of acceptance was read and received with open approval. Ed should make a very good man for this position as he is capable and an enthusiastic race car fan. Highlighting the meeting was the nomination of Glen Matthews, of Rockford, Ill., as next president of AMRCA. Woody Woodward, now president, declined to accept a renomination. Further nominations may be made by mail at any time up until final elections take place. An addition to the present list of AMRCA officers was proposed, namely a Director of Rail Racing, with Jimmy Thompson, of the Chicago Rail Club, suggested as a good man for the job. It was thoroughly agreed upon that Rail should get more prominence and recognition in the AMRCA than in the past.

Of importance to many, was the decision to rotate the location of the future Nationals, each year hitting a different territory in the country so that each section will get a crack at being future hosts. Newcomer to the racing game, Fran Brennan, of Monroe, La., was very anxious to have the South recognized and included as a possible Nationals location. (O.K., Fran, you drum up the interest and we'll be right behind you!)

The Annual Banquet and awarding of the trophies took place in the Crystal Ballroom, with over one hundred competitors and their wives attending. (*The roast beef was tender, too!*) Following the dinner, over ninety beautiful trophies were awarded to the winners by Mr. Woodward and Mr. Krajenke, of the Detroit Club, both capably assisted by the wives of the Detroit Club members.

An added attraction was the presentation of accessory gifts received from various manufacturers of the Hobby Industry. All names of the Nationals' contestants were placed in a box, with Mr. Charles A. Penn, of MODEL CRAFTSMAN, drawing the lucky winners. Three Hornet engines were donated by Ray Snow; a box of Bright Star Batteries, donated by Bright Star Battery Co., and a Pacemaker Proto Car, donated by Mr. Dietrich, of Standard Machine Co.

Climax at the banquet was the surprise which some of the boys cooked up for their retiring secretary, Bob Dunkly, by presenting him with a brand new Pacemaker car and Hornet engine, fully equipped and ready to run. The surprise brought upon Bob was directly reflected in his reactions; for the first time in his life he was unable to speak!

Complete summary of the results in all classes follow, with the best time of both heats shown:

FINAL EVENT

August 3rd

PROTO	MPH
1. Howard Lee, Fresno, Calif.	111.52
2. Wilmer White, Ontario, Calif.	110.70
3. Woody Woodward, Ontario, Calif.	110.15
4. C. A. Kean, Brownsburg, Ind.	107.41
5. Dale Martell, Detroit, Mich.	pass

SPUR	
1. John Crossan, Rock Island, Ill.	115.38

2. George Coffield, Rock Island, Ill. .. 113.49
3. Fred Lunning, Island Park, N. Y. .. 113.20
4. Warren Borden, Zion, Ill. 113.20
5. Wilmer White, Ontario, Calif. 111.38

STREAMLINER

1. Jim Gilmore, Fresno, Calif. 104.98
2. Jim Booher, Detroit, Mich. 86.45

SPUR GEAR
ONE QUARTER MILE EVENT

July 31st

	MPH
1. W. Borden, Zion, Ill.	115.38
2. F. Lunning, Island Park, N. Y.	113.64
3. J. Crossan, Rock Island, Ill.	113.35
4. G. Coffield, U. S. Navy	113.35
5. D. McCoy, Pomona, Calif.	112.93
6. W. White, Ontario, Calif.	111.94
7. J. Beard, Haddonfield, N. J.	111.94
8. L. Wallace, Indianapolis, Ind.	111.24
9. B. Romney, Bakersfield, Calif.	111.24
10. G. Matthews, Rockford, Ill.	110.42
11. A. Anderson, Los Angeles, Calif.	109.62
12. P. Fleener, Paris, Ill.	109.48
13. J. Ogden, Detroit, Mich.	109.22
14. Mrs. J. Kantrow, Detroit, Mich.	109.09
15. E. Hitze, Lafayette, Ind.	108.43
16. J. Kuha, Detroit, Mich.	108.30
17. C. Allen, Danville, Ill.	108.04
18. S. Prussian, Brookline, Mass.	107.65
19. P. Conklin, Battlecreek, Mich.	107.39
20. J. Gaebler, Indianapolis, Ind.	106.38
21. F. Skerbinc, Detroit, Mich.	105.63
22. L. Beri, Lincoln Park, Mich.	105.63
23. B. Shenk, Detroit, Mich.	105.38
24. B. Smith, Wethersfield, Conn.	105.26
25. M. Knell, Urbana, Ill.	105.14
26. V. Baschal, Detroit, Mich.	103.92
27. J. Jaciow, Ludlow, Mass.	103.68
28. A. Anderson, Detroit, Mich.	103.44
29. F. Dallaire, Detroit, Mich.	102.73
30. W. Glatthar, Belleville, Ill.	102.73
31. K. Smith, Indianapolis, Ind.	102.50
32. W. Werntz, Cleveland, Ohio	102.38
33. F. Valles, E. Providence, R. I.	102.15
34. D. Poe, Elkins, W. Va.	102.04
35. O. Hamm, Moline, Ill.	101.92
36. G. Coffield, Rock Island, Ill.	100.67
37. W. Wellenberg, Flushing, N. Y.	100.11
38. R. Snodgrass, Mt. Morris, Mich.	99.66
39. A. Ketner, Moline, Ill.	98.90
40. L. Weisenborn, Brookville, Ohio	98.90
41. F. Brennan, Monroe, La.	98.79
42. D. Poe, Elkins, W. Va.	97.40
43. M. Eberhart, Troy, Ohio	96.35
44. R. Dunkly, New York, N. Y.	96.05
45. P. Anzivine, Youngstown, Ohio	93.75
46. C. Koons, E. St. Louis, Ill.	93.07
47. H. Frank, New York, N. Y.	78.12
48. F. Valeo, Long Island, N. Y.	76.53
49. R. Wenzel, Garwood, N. J.	71.48
50. G. Hamm, Moline, Ill.	68.23
51. J. Paul, Detroit, Mich.	pass
52. E. Grobel, Kenmore, N. Y.	pass
53. A. Fox, Flint, Mich.	pass
54. B. Parrish, Richmond, Ind.	pass
55. R. Hunter, Cleveland, Ohio	pass
56. M. Anderson, Los Angeles, Calif.	pass
57. A. Gill, Hamilton, Ohio	pass
58. E. Price, Cincinnati, Ohio	pass

SPUR GEAR
ONE HALF MILE EVENT

August 1st

	MPH
1. W. Borden, Zion, Ill.	115.97
2. J. Crossan, Rock Island, Ill.	115.68
3. F. Lunning, Island Park, N. Y.	113.85
4. G. Coffield, Rock Island, Ill.	113.56
5. D. McCoy, Pomona, Calif.	112.85
6. J. Jaciow, Ludlow, Mass.	112.50
7. G. Coffield, U. S. Navy	112.50
8. W. White, Ontario, Calif.	112.00
9. E. Wallace, Indianapolis, Ind.	111.94
10. P. Fleener, Paris, Ill.	111.87
11. G. Matthews, Rockford, Ill.	110.42
12. A. Anderson, Los Angeles, Calif.	109.62
13. S. Prussian, Brookline, Mass.	108.89
14. C. Allen, Danville, Ill.	108.10
15. E. Hitze, Lafayette, Ind.	107.91
16. J. Kuha, Detroit, Mich.	107.14
17. L. Beri, Lincoln Park, Mich.	106.82
18. J. Gaebler, Indianapolis, Ind.	105.91
19. A. Anderson, Los Angeles, Calif.	105.69
20. K. Smith, Indianapolis, Ind.	105.69
21. B. Shenk, Detroit, Mich.	105.69
22. Mrs. J. Kantrow, Detroit, Mich.	105.63
23. W. Werntz, Cleveland, Ohio	105.57
24. J. Ogden, Detroit, Mich.	105.50
25. F. Dallaire, Detroit, Mich.	104.89
26. J. Paul, Detroit, Mich.	104.77
27. B. Smith, Wethersfield, Conn.	104.52
28. F. Skerbinc, Detroit, Mich.	104.10
29. V. Baschal, Detroit, Mich.	103.80
30. O. Hamm, Moline, Mich.	103.80
31. M. Knell, Urbana, Ill.	103.74
32. A. Ketner, Moline, Ill.	102.68
33. W. Glatthar, Belleville, Ill.	102.56
34. W. Wellenberg, Flushing, N. Y.	102.09
35. F. Brennan, Monroe, La.	100.78
36. F. Valles, E. Providence, R. I.	99.22
37. R. Snodgrass, Mt. Morris, Mich.	96.98
38. R. Dunkly, New York, N. Y.	96.30
39. E. Grobel, Kenmore, N. Y.	95.59
40. M. Eberhart, Troy, Ohio	95.18
41. C. Koons, E. St. Louis, Ill.	92.64
42. A. Fox, Flint, Mich.	90.77
43. L. Weisenborn, Brookville, Ohio	83.48
44. H. Frank, New York, N. Y.	80.79
45. G. Hamm, Moline, Ill.	70.25
46. J. Beard, Haddonfield, N. J.	pass
47. B. Romney, Bakersfield, Calif.	crash
48. B. Parrish, Richmond, Ind.	pass
49. D. Poe, Elkins, W. Va.	pass
50. D. Poe, Elkins, W. Va.	pass
51. R. Wenzla, Garwood, N. J.	pass
52. P. Conklin, Battlecreek, Mich.	pass
53. R. Hunter, Cleveland, Ohio	pass
54. F. Valeo, Long Island, N. Y.	pass
55. P. Anzivino, Youngstown, Ohio	pass
56. M. Anderson, Los Angeles, Calif.	pass
57. A. Gill, Hamilton, Ohio	pass
58. E. Price, Cincinnati, Ohio	pass

SPUR GEAR
ONE MILE EVENT

August 2nd

	MPH
1. J. Crossan, Rock Island, Ill.	113.38
2. G. Coffield, Rock Island, Ill.	111.94
3. W. White, Ontario, Calif.	111.35
4. L. Wallace, Indianapolis, Ind.	111.00
5. J. Jaciow, Ludlow, Mass.	110.59
6. D. McCoy, Pomona, Calif.	110.49
7. G. Coffield, U. S. Navy	108.33
8. E. Hitze, Lafayette, Ind.	107.78
9. J. Beard, Haddonfield, N. J.	107.75
10. R. Dunkly, New York, N. Y.	107.59
11. A. Anderson, Los Angeles, Calif.	107.30
12. K. Smith, Indianapolis, Ind.	106.54
13. L. Beri, Lincoln Park, Mich.	106.28
14. S. Prussian, Brookline, Mass.	106.03
15. W. Borden, Zion, Ill.	105.94
16. Mrs. J. Kantrow, Detroit, Mich.	105.88

(*Continued on page 48*)

Here's the gang from the east coast who went out in strength, and did okay, too! Top left—W. Wellenberg, Fred Lunning, Bob Dunkly, Stan Prussian, Greg Beard and Jack Mayhew. Lower left—Frank Valeo, Bob Smith, Jack Sheridan, Frank Valles, B. Janovics, Jr., and Dick Deus.

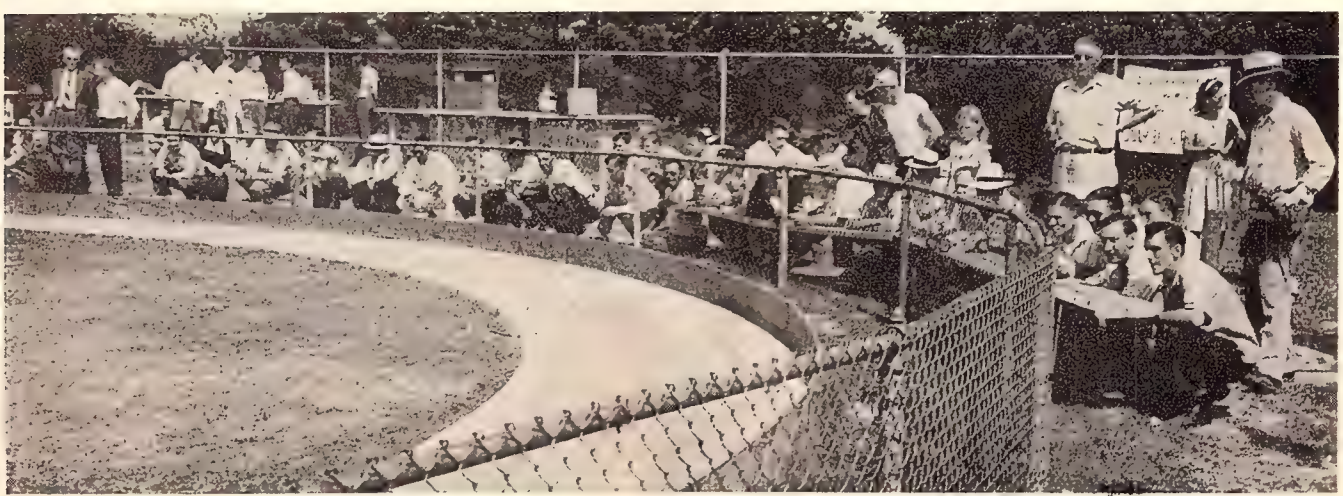


Photo by Hitze

Close-up of track at Detroit Nationals. Those boys who are kneeling aren't tired—they just don't carry much insurance. How about it, Woody!

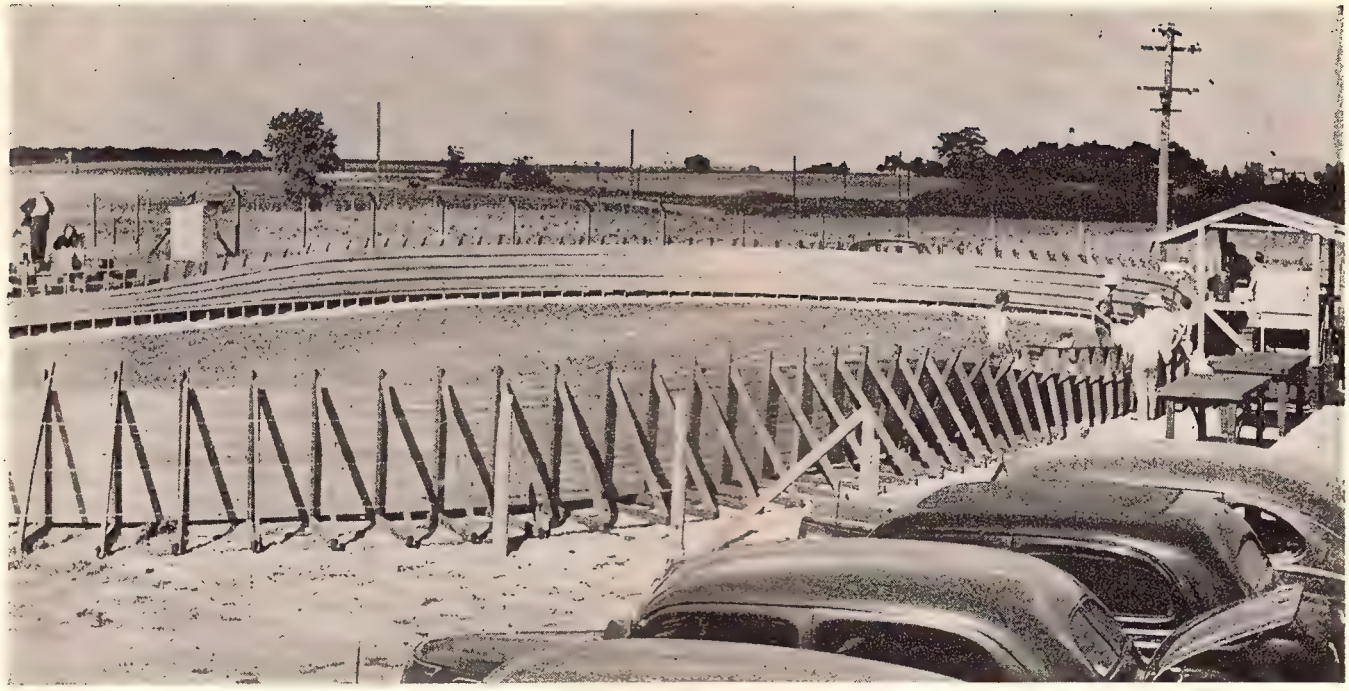
RAIL NATIONALS

Streamliner record set by Willie Weller at 78.40 MPH.; Proto record by Clyde Rohrer at 76.40 MPH.!

THE Chicago-Midwest Model Speedway was officially inaugurated with the opening of the Nationals on July 26th through the 27th and 28th. Woody Woodward came in from California bringing with him one of the new Dooling Conventionals equipped with adapters for rail racing. There were quite a number of out-of-town contestants and visitors, including hobby dealers and others. Minneapolis, Milwaukee and South Bend were well represented, a total of forty-five cars entered.

New world records were made and broken the same day, with action featured every day from morning until night. The track opened at 9 A.M. each morning for practice runs, with the official program starting at noon. Despite the lack of publicity, there were very good crowds of spectators, all cheerfully laying down their fifty cents admission. Interesting to note is the fact that although children were admitted for less money, less than twenty percent of the total gate were children, giving positive proof that Rail Racing is a sport for adults.

Top—Some of the 45 entries with their drivers at the rail nationals. Center—Action at the track. Lower —Timing laps on practice runs. Clyde Rohrer with watch, beyond him is Harry Kopack, starter. No. 6 man is Joedy Loschaivo.



The Nationals were a grand success, both financially and otherwise. The activities were climaxed with a banquet put on by the Chicago boys, with the out-of-towners as their guests. Many beautiful trophies and valuable prizes were awarded and practically everyone went home with some form of prize. Two Hornet engines were donated by Ray Snow, also one donated by our friends, Madsen and Billet, of Minneapolis. These three engines certainly made three people very happy. A beautiful trophy was donated by Herkimer, maker of the OK engine, several fine trophies by our foremost hobby distributor, Mike Trost, of Chicago, a Ken engine, also a Fleetwind engine donated by the makers, a Handee Grinder kit by the Chicago Wheel & Mfg. Co., a Topping Model Airplane by Aerocrafters, of Chicago, oil by Valvoline, fuel by Phillips Petroleum, and many other prizes by hobby dealers. Champion Spark Plug Co. donated a number of gold plated VR-2 plugs to be worn as a charm. The members of the Chicago Model Race Car Association are very grateful to the donors of prizes for helping to make their first big show on the new track, such a success.

Listed below are the results, both of qualifying speeds and point standings at the end of the show. A new world's record for Streamliners on the rails was set by Willie Weller at 78.40 MPH, and for Conventionals at 76.40 MPH by Clyde Rohrer. So with the first big act on Chicago's stage successfully completed, and others following every Sunday, we will say, "ON WITH THE SHOW":

CONVENTIONAL FINALS

Name	Points	Time Qualified
1. J. Thompson	505	74.69
2. J. Loschaivo	400	68.81
3. J. Zalesky	380	70.53
4. R. Springfield	370	70.53
5. G. Riff #26	215	71.43
6. E. Wheeler	200	69.61
7. J. Rozhon	200	69.45
8. L. Heimen	150	71.32
9. W. Woodward, Ontario, Cal.	145	68.60
10. C. Rohrer	140	66.82

(*Continued on page 52*)

Scene of the Chicago-Midwest Model Speedway shown above, just before its completion in time for the Rail Nationals event.

CABLE NATIONALS

(Continued from page 45)

SPUR GEAR
1-Mile Event (con't)

17.	M. Anderson, Los Angeles, Calif.	105.63
18.	J. Ogden, Detroit, Mich.	105.54
19.	W. Werntz, Cleveland, Ohio	105.50
20.	Glenn Matthews, Rockford, Ill.	105.50
21.	Fred Lunning, Island Park, N. Y.	104.71
22.	F. Valles, E. Providence, R. I.	104.65
23.	J. Gaebler, Indianapolis, Ind.	104.07
24.	F. Dallaire, Detroit, Mich.	104.07
25.	A. Anderson, Los Angeles, Calif.	103.74
26.	A. Gill, Hamilton, Ohio	102.76
27.	W. Glatthar, Bellville, Ill.	102.41
28.	M. Knell, Urbana, Ill.	102.18
29.	W. Wellenberg, Jr., Flushing, N. Y.	102.04
30.	O. Hamm, Moline, Ill.	102.04
31.	A. Ketner, Moline, Ill.	101.26
32.	V. Baschal, Detroit, Mich.	101.18
33.	F. Skerbing, Detroit, Mich.	101.09
34.	J. Kuha, Detroit, Mich.	100.50
35.	F. Brennan, Monroe, La.	99.44
36.	P. Anzivino, Youngstown, Ohio	97.56
37.	M. Everhart, Troy, Ohio	96.93
38.	L. Weisenborn, Brookville, Ohio	95.54
39.	B. Smith, Wetherfield, Conn.	92.59
40.	C. Koons, E. St. Louis, Ill.	90.29
41.	E. Grobel, Kenmore, N. Y.	86.51
42.	H. Frank, New York, N. Y.	82.75
43.	E. Price, Cincinnati, Ohio	81.04
44.	F. Valeo, Long Island, N. Y.	pass
45.	A. Fox, Flint, Mich.	pass
46.	J. Paul, Detroit, Mich.	pass
47.	R. Hunter, Cleveland, Ohio	pass
48.	R. Snodgrass, Mt. Morris, Mich.	pass
49.	P. Conklin, Battle Creek, Mich.	pass
50.	R. Wenzela, Garwood, N. J.	pass
51.	C. Allen, Danville, Ill.	pass
52.	B. Shenk, Detroit, Mich.	pass
53.	D. Poe, Elkins, W. Va.	pass
54.	D. Poe, Elkins, W. Va.	pass
55.	G. Hamm, Moline, Ill.	pass
56.	P. Fleener, Paris, Ill.	pass
57.	B. Romney, Bakersfield, Cal.	pass
58.	B. Parrish, Richmond, Ind.	pass

PROTO
ONE QUARTER MILE EVENT
July 31st

		MPH
1.	H. Lee, Fresno, Calif.	108.04
2.	W. White, Ontario, Calif.	107.91
3.	D. Martell, Detroit, Mich.	106.38
4.	D. McCoy, Pomona, Calif.	105.26
5.	K. Held, Detroit, Mich.	104.98
6.	J. Mayfield, Waukegan, Ill.	104.28
7.	C. Lamb, Pomona, Calif.	103.68
8.	C. Kean, Brownsburg, Ind.	103.21
9.	H. Harrison, Plainfield, Ind.	102.85
10.	W. Woodward, Ontario, Calif.	102.38
11.	J. Nishimoto, Detroit, Mich.	102.04
12.	F. Matthews, Rockford, Ill.	101.23
13.	A. Aguilar, Azusa, Calif.	101.12
14.	K. Smith, Indianapolis, Ind.	100.55
15.	J. Crossan, Rock Island, Ill.	100.33
16.	P. Fleener, Paris, Ill.	100.33
17.	G. Fairabend, Ferndale, Mich.	100.22
18.	W. Pousho, Detroit, Mich.	100.00
19.	E. Winchell, Detroit, Mich.	99.66
20.	J. Olender, Indianapolis, Ind.	99.44
21.	M. Lewis, Waukegan, Ill.	99.33
22.	J. Ogden, Detroit, Mich.	99.11
23.	J. Gaebler, Indianapolis, Ind.	99.00
24.	M. Knell, Urbana, Ill.	98.79
25.	E. Hitze, Lafayette, Ind.	98.79
26.	R. Mahon, Ceresco, Mich.	98.25
27.	W. Borden, Zion, Ill.	97.50
28.	D. Janovica, Trenton, N. J.	97.29
29.	J. Kantrow, Detroit, Mich.	96.15
30.	H. Suddeth, Indianapolis, Ind.	95.74
31.	R. Deus, Jr., Bronx, N. Y.	95.64
32.	J. Weightman, Detroit, Mich.	95.33
33.	R. Carithers, Danville, Ill.	95.03
34.	C. Johnson, Waukegan, Ill.	93.65
35.	F. Brennan, Monroe, La.	91.18
36.	D. Castle, Jackson, Mich.	88.84
37.	C. Myers, Los Angeles, Calif.	88.84
38.	R. Hunter, Cleveland, Ohio	88.66
39.	J. Athens, Rochester, N. Y.	87.97
40.	C. Meyer, Flint, Mich.	86.87
41.	G. McKee, Kansas City, Mo.	82.34
42.	C. Ketner, Silvis, Ill.	81.66
43.	A. Anderson, Los Angeles, Calif.	76.40
44.	L. Weisenborn, Brookville, Ohio	50.64
45.	H. Frank, New York, N. Y.	pass
46.	O. Hachigian, Detroit, Mich.	pass
47.	C. Wilson, San Diego, Calif.	pass
48.	B. Swarts, San Diego, Calif.	pass
49.	E. Skilling, San Diego, Calif.	pass

PROTO
ONE HALF MILE EVENT
August 1st

		MPH
1.	H. Lee, Fresno, Calif.	107.97
2.	C. Kean, Brownsburg, Ind.	105.57
3.	D. Martell, Detroit, Mich	105.38
4.	W. Woodward, Ontario, Calif.	105.14
5.	W. White, Ontario, Calif.	104.46
6.	W. Pousho, Detroit, Mich.	103.74
7.	C. Lamb, Pomona, Calif.	102.85
8.	M. Lewis, Waukegan, Ill.	102.73
9.	A. Aguilar, Azusa, Calif.	101.92
10.	K. Held, Detroit, Mich.	101.86
11.	J. Mayfield, Waukegan, Ill.	101.80
12.	D. McCoy, Pomona, Calif.	101.58
13.	J. Nishimoto, Detroit, Mich.	101.29
14.	J. Crossan, Rock Island, Ill.	101.06
15.	H. Harrison, Plainfield, Ind.	100.39
16.	E. Hitze, Lafayette, Ind.	100.33
17.	J. Kantrow, Detroit, Mich.	98.79
18.	H. Suddeth, Indianapolis, Ind.	98.03
19.	R. Deus, Bronx, N. Y.	97.87
20.	C. Johnson, Waukegan, Ill.	97.56
21.	J. Ogden, Detroit, Mich.	97.29
22.	P. Fleener, Paris, Ill.	96.82
23.	M. Knell, Urbana, Ill.	96.51
24.	E. Winchell, Detroit, Mich.	96.00
25.	J. Olender, Indianapolis, Ind.	96.00
26.	A. Anderson, Los Angeles, Calif.	95.59
27.	R. Carithers, Danville, Ill.	95.49
28.	F. Matthews, Rockford, Ill.	95.38
29.	J. Gaebler, Indianapolis, Ind.	94.38
30.	B. Janovics, Trenton, N. J.	93.84
31.	J. Athens, Rochester, N. Y.	90.04
32.	D. Castle, Jackson, Mich.	88.49
33.	J. Weightman, Detroit, Mich.	88.19
34.	R. Mahon, Ceresco, Mich.	87.59
35.	R. Hunter, Cleveland, Ohio	87.12
36.	F. Brennan, Monroe, La.	85.38
37.	G. Fairabend, Ferndale, Mich.	84.70
38.	C. Wilson, San Diego, Calif.	83.68
39.	G. McKee, Kansas City, Mo.	82.56
40.	C. Ketner, Silvis, Ill.	81.15
41.	K. Smith, Indianapolis, Ind.	42.51
42.	O. Hachigian, Detroit, Mich.	pass
43.	C. Myers, Los Angeles, Calif.	pass
44.	C. Meyer, Flint, Mich.	pass
45.	L. Weisenborn, Brookville, Ohio	pass
46.	H. Frank, New York, N. Y.	pass
47.	W. Borden, Zion, Ill.	pass
48.	E. Skilling, San Diego, Calif.	pass
49.	B. Swarts, San Diego, Calif.	pass

PROTO
ONE MILE EVENT
August 2nd

		MPH
1.	H. Lee, Fresno, Calif.	109.02
2.	W. Woodward, Ontario, Calif.	107.07
3.	C. Kean, Brownsburg, Ind.	105.17
4.	W. Pousho, Detroit, Mich.	102.97
5.	W. White, Ontario, Calif.	102.35
6.	J. Mayfield, Waukegan, Ill.	102.12
7.	J. Crossan, Rock Island, Ill.	101.92
8.	C. Lamb, Pomona, Calif.	101.92
9.	M. Lewis, Waukegan, Ill.	101.37
10.	A. Aguilar, Azusa, Calif.	100.69
11.	D. Martell, Detroit, Mich.	100.58
12.	D. McCoy, Pomona, Calif.	99.77
13.	H. Suddeth, Indianapolis, Ind.	99.36
14.	G. Fairabend, Ferndale, Mich.	98.11
15.	E. Hitze, Lafayette, Ind.	98.09
16.	J. Kantrow, Detroit, Mich.	98.01
17.	E. Winchell, Detroit, Mich.	97.87
18.	C. Johnson, Waukegan, Ill.	97.82
19.	B. Swarts, San Diego, Calif.	97.79
20.	J. Olender, Indianapolis, Ind.	97.45
21.	K. Smith, Indianapolis, Ind.	97.45
22.	H. Harrison, Plainfield, Ind.	97.29
23.	A. Anderson, Los Angeles, Calif.	97.03
24.	K. Held, Detroit, Mich.	96.87
25.	F. Matthews, Rockford, Ill.	96.23
26.	B. Janovics, Jr., Trenton, N. J.	94.86
27.	J. Ogden, Detroit, Mich.	94.83
28.	J. Nishimoto, Detroit, Mich.	94.76
29.	M. Knell, Urbana, Ill.	94.43
30.	E. Skilling, San Diego, Calif.	90.63
31.	R. Carithers, Danville, Ill.	90.49
32.	R. Mahon, Ceresco, Mich.	89.66
33.	R. Hunter, Cleveland, Ohio	87.04
34.	J. Gaebler, Indianapolis, Ind.	86.43
35.	J. Athens, Rochester, N. Y.	83.06
36.	G. McKee, Kansas City, Mo.	82.43
37.	R. Deus, Bronx, N. Y.	pass
38.	F. Brennan, Monroe, La.	pass
39.	D. Castle, Jackson, Mich.	pass
40.	P. Fleener, Paris, Ill.	pass
41.	W. Borden, Zion, Ill.	pass
42.	C. Ketner, Silvis, Ill.	pass
43.	J. Weightman, Detroit, Mich.	pass
44.	H. Frank, New York, N. Y.	pass
45.	L. Weisenborn, Brookville, Ohio	pass
46.	C. Meyer, Flint, Mich.	pass
47.	C. Myers, Los Angeles, Calif.	pass
48.	C. Wilson, San Diego, Calif.	pass
49.	O. Hachigian, Detroit, Mich.	pass

STREAMLINER

	¼ Mile	½ Mile	1 Mile
Jim Gilmore, Fresno, Cal.	100.22	102.50	100.44
Jim Booher, Detroit, Mich.	77.51	83.44	86.48
Earl Morris, Muncie, Ind.	70.20	68.54	pass
James Eberhart, Troy, Ohio	42.85	50.45	pass

FLASH RESULTS

The following high speeds were turned in at the Long Island, N. Y., track on Sunday, August 18. (Story too late for publication.)

Best time listed for 3 heats in ¼ mile event:

SPUR GEAR

		M.P.H.
1.	F. Luning	116.57
2.	J. Jaciow	115.53
3.	D. Deus	99.11
4.	J. Beard	111.52
5.	F. Luning	109.48
6.	L. Prussian	109.22
7.	E. Rogers	107.91
8.	S. Abramski	107.27
9.	C. Hewitt	106.38
10.	J. Kenny	104.16

PROTO

1.	W. Martine	103.44
2.	G. Matthews	99.44
3.	D. Deus	99.11
4.	B. Janovic	92.97
5.	K. Pasler	88.66
6.	H. Frank	84.98

Photo by Hitze

"Ain't 'ch getting tired, fellas?" Left to right—Herby Suddeth, Joe Olender, J. T. Pegue (Albuquerque, N. M.), Fran Brennan (Monroe, La.), and Woody Woodward.

MIDGET RACERS ORGANIZE AT MONROE, LA.

MINIATURE race cars just made their debut at Monroe, Louisiana, when Fran Brennan, local enthusiast, put on a real show for all prospects with motion pictures and two demonstration cars. Ac-

cording to Fran, his plans call for the construction of a concrete race track and the sponsoring of "Speedway Classics" with local race car owners competing with clubs in their surrounding territory.

You really have to hand it to Fran Brennan, for he is "heart and soul" for the game. Those of you who saw him at the Nationals should have no doubt of this, for he literally bubbles with enthusiasm whenever the "spin dizzies" go into action. According to Fran, "I'll get that new track and a club organized down south if it kills me!" He has already announced a speedway event for January 1st and promises all the boys a fine time as inducement to travel down there.

Just to show you that Brennan isn't all talk, he has already purchased the trophy which will be given to the person breaking the present Spur gear record at his New Year's Day Event. That's just the kind of enthusiasm we need to put this hobby over with a "bang." Fran has his heart set on appointment as Regional Director for AMRCA in his territory, so it's up to you fellows down there to get behind him and give him the best cooperation you know how. Good luck, Fran!

EUSTIS BOYS STILL GOING STRONG!

ON JULY 28th, the boys from the Eustis, Florida, club traveled to Jacksonville and walked off with two firsts and a second. President Bill Baker took first in Spur while Jim Burkhalter and Don Haselton (all Eustis boys) took first and second in the conventionals.

Forrest LaRoe, Eustis, Florida, winner of the State Championship.

This race was the first for the Jacksonville gang since the war started. A big turnout was on hand, the entire meet being very enjoyable for all concerned. More power to the Jacksonville Club and to Hank Milstrey and Frank Dronmonger for running a fine race!

The Eustis track record is now held by Forest LaRoe, of Eustis, at 107.12 MPH. Next race coming up will be at St. Petersburg and the boys are all eyeing it now to bring home some firsts. An open meet will be held on Nov. 10th at the Eustis track, starting at 1 P. M.

Where Does Racing Go From Here?

SOMETHING must be done immediately about the alarming conditions that exist in model car racing today. This is not a hysterical cry in the dark, but an appeal based on first hand facts gathered over a period of months and substantiated at the recent AMRCA National Race Meet and Convention in Detroit.

First of all there are already two national associations in existence and reliable reports indicate that two more are in the stages of formation. According to the best information this writer could obtain, International Model Racing Car Association came into being because of conflicting personalities and obstinate "hair splitting" on rules and regulations. The last named two groups are being formed because of "general dissatisfaction." It seemed to us that there was a good possibility of the AMRCA and IMRCA getting together on some basis at Detroit, but nothing was accomplished. The principal barrier seemed to be that AMRCA recently removed its minimum weight restrictions, while IMRCA refuses to admit cars weighing less than six pounds.

Apparently the only reason for lowering the minimum weight was an effort on the part of some to achieve a few more seconds in speed. We disagree with this principle for several reasons. First, we believe that speeds are too high now to cope with measures taken to date for safety. In the past, too much emphasis has been placed on speed and too little has been done about safety. Such conditions can be very injurious, not only to the veteran racer, but primarily to the newcomer and spectator. Keep in mind that this is a *hobby,* to be used for diversion and relaxation. Should it become too dangerous, there will be no attraction for new blood in the field and it will certainly meet with opposition from public officials.

Secondly, top speeds are gradually settling into the hands of a few experts, some of whom are so deadly serious that it ceases to be a sport for either them or their fellow racers.

Third, we believe that recent changes have been made in the rules and regulations with too little regard for the interests of the manufacturers. These men have a tremendous interest in dies, patterns and fixtures and any arbitrary change in design regulations might well prove disastrous to some. At best it would mean serious loss in both time and money.

We are not championing the manufacturer simply because he is an advertiser, but because without him we cannot hope to grow. Without him the sport would dwindle and rest in the hands of the minority group of experts who could build their own cars and motors from raw material. This, of course, would deprive thousands of amateurs from participating in the sport and supporting the hobby that so many of us now enjoy on such a wide scale. Furthermore, no publication can support a hobby which does not yield a certain amount of revenue from advertising and magazine sales.

In view of these conditions we believe that now is the time for drastic action. Why let matters drag until next year? There is no serious reason for this apparent dissatisfaction and impending disorganization if immediate steps are taken to bring about harmony and better organization. Cooler heads in both the present national associations have expressed their willingness to cooperate and with a progressive new program put into effect now there would be no basis for others to attempt to form new national groups.

Inasmuch as the secretary of AMRCA has resigned and the president has refused the nomination for re-election, we have proposed that the president call an immediate election of officers so as to allow the new incumbents to begin their duties in the shortest time possible. This is no reflection upon present or former officers, for in the past troubled years we have all suffered handicaps. We know that these gentlemen will not take offense where it isn't intended and that they are fair minded enough not to want to delay their successors in getting a post war program under way. As evidence of this we quote the following telegram from W. W. Woodward, President of AMRCA: Ed Fitzgerald (temporary Sec'y-Treas., AMRCA), Governor Clinton Hotel, N. Y. C.: "In order to obtain complete harmony in all racing factions it is, in my opinion, necessary to hold a special election of all officers. After three years of doing the best Dunkly and myself could, we are more than happy to turn the Association over to new officers and wish them the greatest of success. Send out ballots to all members as soon as possible. W. Woodward, Pres."

Ed Fitzgerald, temporary Secretary-Treasurer of AMRCA, has informed us that all officers have been notified of this move and that ballots will be in the mails within a few days. He also said that he would like to hear from non-members, too, in order to get a general consensus of opinion. Of course, only member votes will count in the election. The following were nominated at the National Convention in Detroit, however, you are privileged to write in other names if you choose: President, Glen Mathews (Central States); Vice-President, Art Silver (West Coast) or Jim Gilmore (West Coast); Secretary-Treasurer, Edward D. Fitzgerald (East Coast). An amendment will be offered in the November elections to provide for the appointment of Directors in accordance with the wishes of regional members.

Every AMRCA member should give his immediate and undivided attention to this special election because it is probably the most important one ever held. Time is of the essence, immediate action is needed to make your Association more valuable to you. C. A. PENN, Editor.

CHICAGO MIDWEST SPEEDWAY BUZZING WITH ACTIVITY

By J. T. THOMPSON

AFTER approximately one year of apparent inactivity, Chicago is really a veritable beehive now. We say apparent inactivity, for there was actually much more action taken in this short year than the world knows about. The boys of the CMRCA accomplished the impossible, or almost impossible, in securing materials and a location, also designing and building what we truly believe to be the finest model auto racing plant the world has yet seen.

Facing many discouraging obstacles, these boys showed that they were real Americans and refused to be stopped. With the treasury low and prices going up, they advanced hard earned cash from their own pockets to swell the financial balance well into four figures. They knew they were going to build a track somewhere, somehow. When restrictions were lifted on the sale of materials, most lumber yards could hardly furnish more than material for a toothpick. Red cypress seemed to be unheard of in Chicago but the boys located 4,000 feet of this precious wood from some forgotten source. Although the lumber was wet and the pieces frozen together, these boys, with the aid of a small two-wheel trailer behind an automobile, moved the 30,000 pounds of wet lumber into the basements of several of their homes to dry it out before processing.

One good member, Harry Kopack, donated the use of his two-car garage, content to let his own automobile weather the severe Chicago winter and snow storms. One member furnished an oil stove for heat, another a power saw, two others floor model drill presses, and the shop was ready for action.

It takes stainless steel for rails on the world's finest speedway, so stainless steel it had to be. Two members in their search located 550 pounds of 18-8 stainless, .065" in thickness, in a surplus warehouse and after some discussion with the owner, bought it at about ½ market price. After being turned down by a dozen sheet metal shops, one shop agreed to "shear and brake" it into rails for approximately $130.00. The rail was moved into "the shop" and the two drill presses were set to work drilling and countersinking.

The faithful little trailer moved the 2 x 4 lumber to the mill for dressing and back to the shop for cutting on the power saw. Thirty gallons of red shingle stain were purchased, a dipping trough constructed, and the lumber painted by dipping. Cadmium plated bolts were purchased, holes drilled, and the lumber bolted together into jacks, 166 of them.

(*Continued on page 52*)

DETROIT BOAT REGATTA

By ROBERT GRAHAM

DETROIT Model Power Boat Club held their first three day race since before the war on July 4, 5, and 6, with over 32 entries competing. Those attending these Regattas are always certain to see new world's records made, as well as a wide variety of boats and engines.

Mike Succarde of Detroit was the lone user of steam for power. It was really something to see his big 16 pound entry as it hustled around, with engines screaming, torch roaring, and giving out clouds of steam! Although in previous races he had made 56 mph, his best speed for this race was 48.56 mph.

Joe May of Detroit set a new world's record in Class D with a speed of 65.53 mph, using Hornet engine equipped with a flywheel magneto. He really cleaned up on trophies, winning the Gar Wood trophy for high speed of the race, the Class D trophy and the MODEL CRAFTSMAN plaque for the most miles per hour per pound of weight at 13.65 miles per pound.

Charles Verhaeghe also cleaned up with Class A first, Class C second, Class D second, Class E third, and the Mac Park trophy on the third day in a race of the ten fastest boats of the two previous days at 58.70 mph with his Class D boat. His Class A boat also holds a world's record of 57 mph.

Ed Baronowski of Detroit with his Class E boat was the winner of the MODEL CRAFTSMAN trophy with the highest average speed of the race to an entrant never before winning a prize. His average was 29.46 mph.

Bonny DeWicz had a neat Class B boat with an inboard, outboard drive, a long shaft inside the boat from the engine to the drive unit, then by two sets of bevelled gears to the propeller which faces forward to the head of the unit. This type of drive was also used by Zieman. The results follow:

	MPH
CLASS A GAS	
1. C. Verhaeghe, Detroit, Mich.	45.92
2. R. Lemp, Detroit, Mich.	45.00
3. R. Tesch, Detroit, Mich.	36.89
CLASS A STEAM	
1. M. Succarde, Detroit, Mich.	48.56
CLASS B	
1. R. Adams, Detroit, Mich.	45.00
2. B. Kiewicz, Detroit, Mich.	32.91
3. R. Tesch, Detroit, Mich.	19.85
CLASS C	
1. E. St. Antoine, Windsor, Ont., Canada	50.38
2. C. Verhaeghe, Detroit, Mich.	45.61
CLASS D	
1. J. May, Detroit, Mich.	65.53
2. C. Verhaeghe, Detroit, Mich.	59.73
3. L. Toutant, Detroit, Mich.	59.22
CLASS E	
1. E. Brown, Detroit, Mich.	58.69
2. J. Tate, Detroit, Mich.	57.69
3. C. Verhaeghe, Detroit, Mich.	54.00

Gar Wood Trophy for highest speed to J. May at 65.53 mph
Model Craftsman Plaque to J. May at 13.65 miles per hour per pound of weight.
Model Craftsman Novice Trophy to E. Baronowski with average for race of 29.46 mph
Mack Park Trophy for race of ten fastest boats to C. Verhaeghe at 58.70 mph

Three day Regatta, Detroit, Mich. Left photo, L to R—R. Mancinelli, holder Class C World Record at 58 MPH; Joe May, holder Class D World Record at 65 MPH; E. St. Antoine, Class C winner of 3-day Regatta at 50.38 MPH. Right photo, standing L to R—B. Lemp, Class A 2nd; C. Verhaeghe, Class A 1st (see results); E. Baronowski, Model Craftsman Trophy; Ed Brown, Class E 1st. Kneeling, L toR—M. Succarde, Class A Steam; J. May, Class D 1st; Lou Toutant, Class D 3rd.

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ON THE LAND — **105 MPH** — Wilmer White, Ontario *(Prototype)*

ON THE WATER — **59.81** — Charles Boxmann, Detroit

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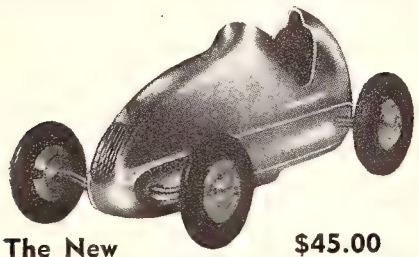

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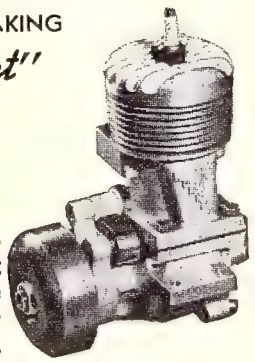

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CHICAGO SPEEDWAY

(Continued from page 50)

March came and went, Bob Mulhall, of AMRCA, came looking for a place to hold the 1946 Rail Nationals, but no location for building was yet on the horizon. Pressure increased by leaps and bounds, the boys owned a track but no place to set it up. Action followed pressure, and a two acre plot of land was leased south of Chicago's western suburb of Downer's Grove, but you cannot build an expensive structure right out in the open without some protection. Harry Vernon, the Vice President, got busy and located a wire fence some 1300 feet long around an abandoned government radar school which could be bought very reasonable, but leaving a problem of dismantling and moving. The little trailer, with brawn and muscle of the members, moved that fence in two Sundays, lock, stock and barrel, plus the posts which had to be pulled out of the ground.

Fencing and grading of the site got under way; so did the neighbors with a petition against the building; however, we are sure that the majority of the signers were not adequately informed as to just what the project was to be. Anyway a building permit had already been secured from the county zoning board, and since the land is zoned for "race tracks," construction was not halted. In a few short weeks, the scenery changed from a lonesome weed covered prairie to the finest little racing plant you have ever seen, with the reddish, brown stained jacks standing like soldiers on parade, and supporting the natural wood color racing strip with its four shining stainless steel rails. Surrounding the track with its appurtenances such as judges' stand and pit benches along the south straightaway, and bleacher seats (capacity 108 people) along the north straightaway, is high wire fence with barbed wire angle arms at the top, and leaving ample space inside for any emergency.

It is regretted that our friends, the publishers, neglected to give us some publicity on the National Rail Races, for we are sure there are many who would have attended had they known of it; however, we welcome all to visit us at your convenience. We will be racing each Sunday afternoon until the end of October. Should there be any difficulty in locating the track, please call or write the Corresponding Secretary, J. T. Thompson, 1922 So. 61st Court, Cicero 50, Illinois, Phone Town Hall 1609.

The location of the track is 3 miles due south of Downer's Grove, Illinois, on the Downer's Grove-Lemont Road, which is a continuation of Main Street. It is 2 miles north of the junction of Downer's Grove-Lemont Road and U. S. Route 66.

RAIL NATIONALS

(Continued from page 47)

Convention Finals Con't.

11.	F. Tregler	135	66.38
12.	R. Springfield	115	68.97
13.	W. Dian, Belmont, Ill.	105	64.99
14.	J. Weithofer, Milwaukee	105	63.82
15.	G. Riff	100	65.94
16.	T. Alongo	95	61.60
17.	G. Fetzner	90	63.70
18.	J. Jaeger, Milwaukee	70	61.22
19.	S. Becher	65	59.21
20.	R. Staschhe	60	60.91

STREAMLINER FINALS

	Name	Points	Time Qualified
1.	W. Weller	490	76.92
2.	C. Rohrer	455	77.32
3.	B. Meskowski	400	74.38
4.	J. Thompson	285	76.86
5.	W. Decker, Milw.	270	75.25
6.	B. Starwick, Milw.	195	73.77
7.	F. Pawlikowski	190	72.88
8.	J. Loschaivo	185	72.35
9.	S. Starwick, Milw.	165	72.88
10.	E. Babowski	130	71.77
11.	H. Kopack	120	70.53
12.	C. Wolff	115	70.53
13.	C. Widen	110	70.42
14.	M. Madsen	100	70.98
15.	A. Greenwood	95	68.91
16.	A. Manteufel, Milwaukee	95	68.70
17.	H. Hoagenson, Min.	85	69.66
18.	H. Vernon #7	80	68.23
19.	H. Vernon #7A	70	66.38
20.	E. Kohloff, Milwaukee	65	66.33
21.	T. Keyworth, So. Bend	60	64.52
22.	E. Marks	50	46.63
23.	R. Ziegler, Milwaukee	40	46.36
24.	C. Van Acher, So. Bend	10	....
25.	E. Lipske	10	....

FEATURE RACE ONE MILE STREAMLINER

1. Willie Weller
2. Benny Meskowski
3. Bill Decker
4. Clyde Rohrer

FEATURE RACE ONE MILE CONVENTIONAL

1. Joedy Loschaivo
2. Jimmie Thompson
3. Roy Springfield
4. Joe Zalesky

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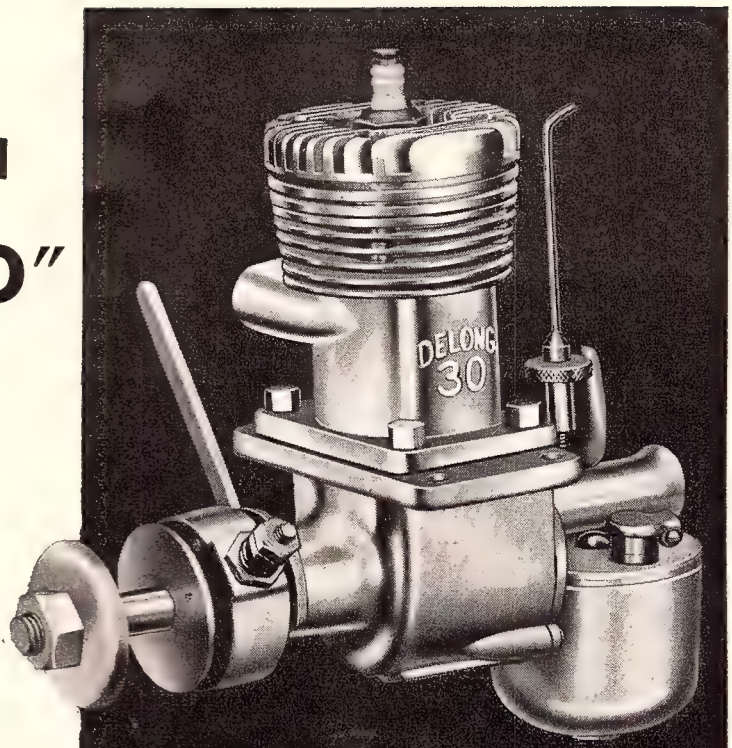

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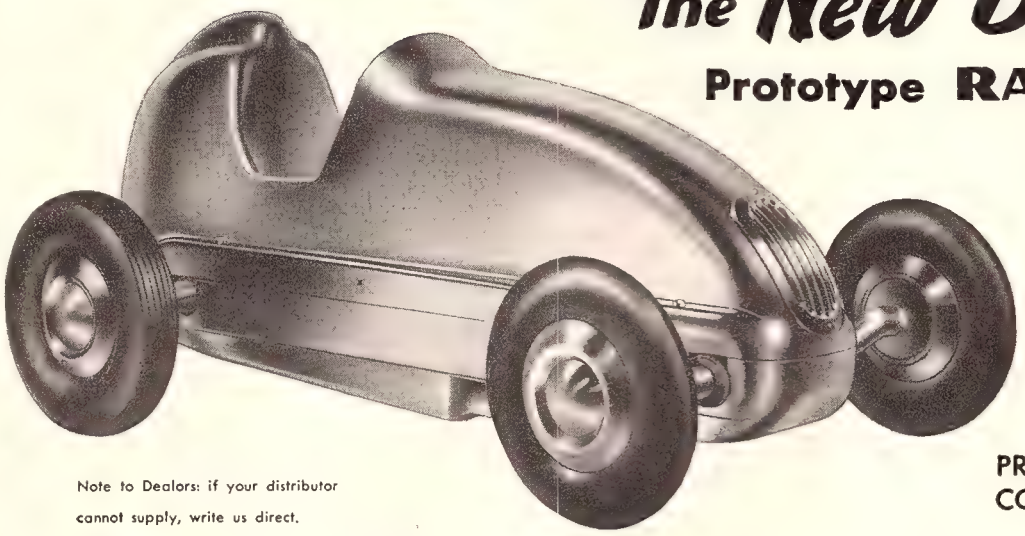

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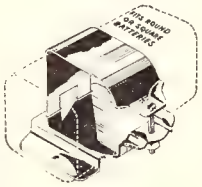

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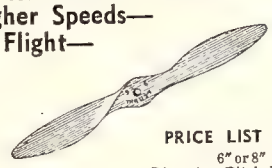

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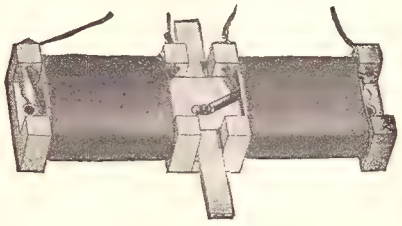
10"	40c	45c
11"	40c	50c
12" or 13"	45c	60c
14"	50c	65c

ELECTRA SWITCH MACHINES



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INTERLOCKING PLANT

(*Continued from page 24*)

First make a wooden jig Z with a base of soft wood. Draw lines on the base, bounding the leading ends of the points, the outside of the bases of the point rails and the butt ends of the points. The shaded sections of Z show pieces of ⅛" wood tacked along these lines. One scale foot back from the extreme points, make a hack saw cut as shown to hold the 1/16" square brass tie rod. Shape the points and form the tie rod, which should be 1/32" shorter than the distance between the closure rails at the point occupied by the tie rods.

Place the tie rod in the saw cut, the points in their proper place and solder together. Shape a piece of thin brass to form Y-3 with a square hole to make a loose fit on the 1/16" square operating rod Y-4. This should be soldered in place so that the hole centers three scale feet from the extremities of the points. Remove the assembly from the jig and bevel the ends of the tie rods.

In my installation, an insulating break was used as shown at E. The opening between the rails (Black) is filled with Plastic Wood after the rails are spiked down. After drying it is sanded smooth and when a coating of dirt has been acquired the breaks are not very noticeable. With these gaps, the rails cannot slip and close the gap, the wheels always rest on metal and the non-scale sound effect is greatly reduced.

The switch machines were mounted as shown in K, Fig 2. A piece of 1/16" square brass is bent as shown and soldered to the armature of the machine. This bend is made in order that the slot through T lines up with the center of the armature. The contacts K-10 are connected to the closure rails Y-12, or the power leads to the closure rails, and the armature Y-11 connected to the lead rails Y-9. Thus there are three electrical connections between the points and the closure rail corresponding to the position of the switch, (1) through the point in contact, (2) through the operating rod, and (3) through the wire to the frog. It is well to make the operating rod about ¼" longer than required and to cut it to the exact size after the points have been placed in position.

In ballasting, be careful to place no ballast between Y-6 and Y-7, Y-7 and Y-8, the ties which enclose the tie rod and the operating slot. Fish plates Y-1 are slid on the ends of the lead rails Y-9 for one half of their length and soldered in place. The open ends of the fish plates are spread slightly to take the butt ends of the points. Slide the points into the fish plates, reach under the board to adjust the operating rod, Y-4, fit it into Y-3 and press the assembly into place. On the first assembly it may be neces-

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TRUCKS, "O" GAUGE
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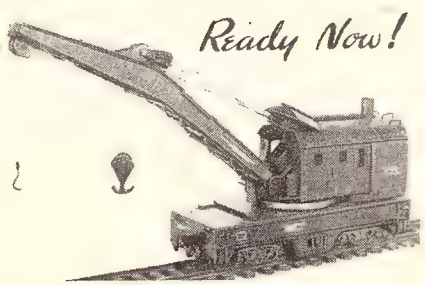

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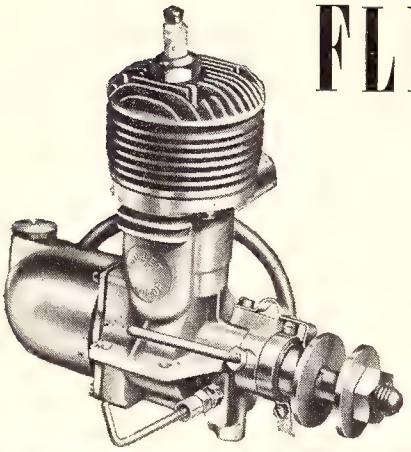

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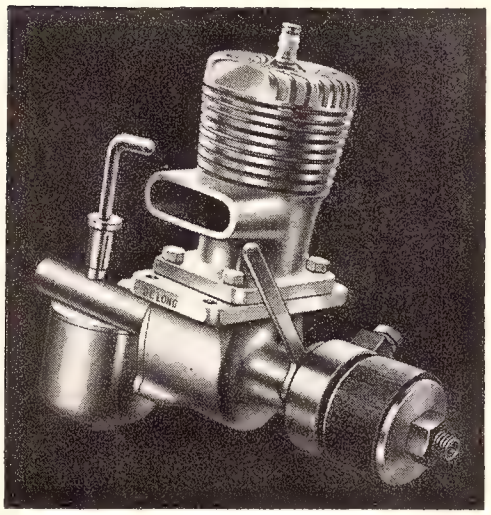

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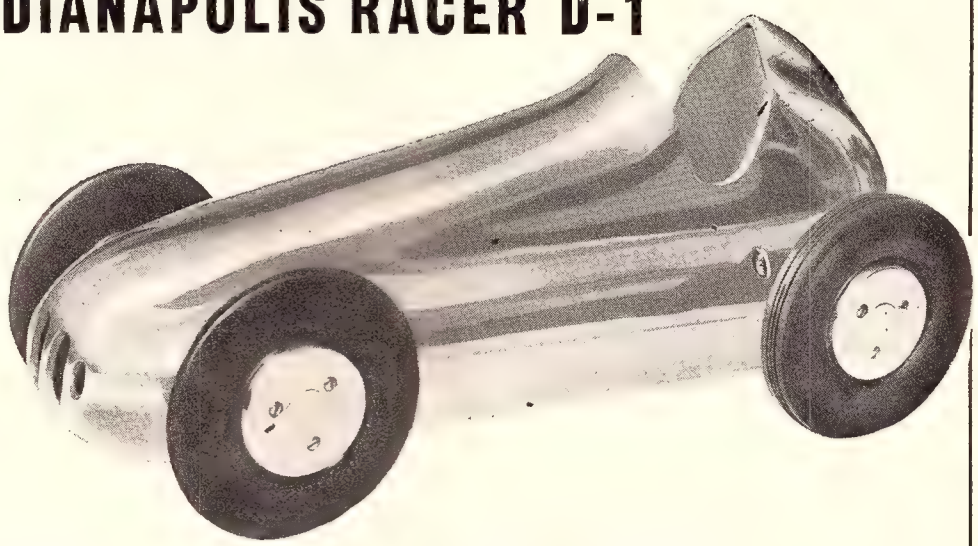

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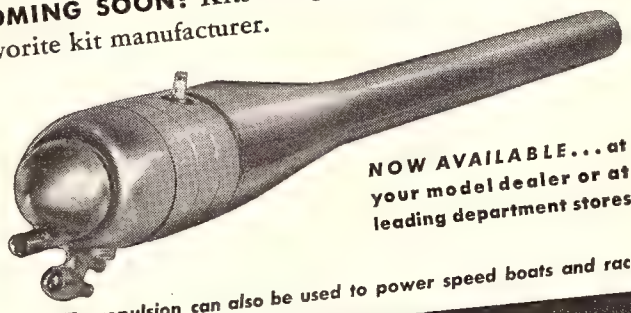

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sary to move the ties slightly to accomplish this. It will also probably be necessary to bend the operating rod Y-4 slightly in order that the points fit closely in both the energized and de-energized positions of the switch machine. Sometimes it will be necessary to spike a narrow strip of brass across the ties Y-6 and Y-7 to hold down the points. This assembly has the advantage of being easily removed for cleaning and adjusting. It is not suitable for an installation which does not provide a positive force to hold the points in position. Before inserting the operating rod, test by blowing them open and closed with your breath.

The roadbed, trackage and switch operating gear now being in place, the section can be installed and operated, pending the construction of the signal bridge and signal interlocking machine. If the working side is within six inches of the edge of the table, now that the brackets are installed, all of the remaining parts may be installed without removing the section from the layout.

(*To be continued*)

YOUR ENGINES

(*Continued from page 17*)

can be a guide to the propeller which would be necessary for individual requirements. Editor's note: (Elsewhere in this issue is a chart which can be used by these—fliers to determine the correct pitch and diameter to be used for the flying speeds desired in conjunction with the engine displacement.) If more thrust is needed at lower speeds than the findings show that a larger diameter propeller with low pitch would be desirable. Conversely, a smaller diameter propeller with higher pitch is desirable for more thrust only at higher speeds.

Free flight fans can be enlightened by studying the findings and notice how torque increases with the RPM and pitch of individual propellers. This is of extreme importance since torque is a huge factor in free flight model adjustments. The difference of thrust with different propellers on the same displacement engines should also be studied to show the effect that this RPM has on the thrust, and the amount of this thrust. This figure (thrust) can foretell to some degree the climbing ability of your model. Naturally the greater the thrust, the greater the possible rate of climb.

By study and consideration of the different figures presented, you, the model builder, prospective engine buyer and engine owner, can be guided to more success and enjoyment in the sport and hobby of model building and model flying. If this survey serves that purpose then the exhaustive, drawn out tests which we have conducted these past four months have been well worthwhile.

It is the sincere hope of the MODEL CRAFTSMAN that this engine survey has enlightened you on some of the questions and doubts in your mind. This survey is intended as a service to our readers and is one of a series of different surveys that will be presented from time to time.

Three men holding hands to show the length of the cable at the Boulder Creek Race meet. Left—R. Smith, Ray Hook and Ed. Schulze. Directly over R. Smith in photo is Doc Schmidt, shown leaning on fence.

MEMORIAL SPEEDWAY AT BOULDER CREEK, CALIF.

DURING early June of this year, Burton "Doc" Schmidt, recently discharged from the service, staged a model race car meet at Boulder Creek, California, on a small dirt track with the idea in mind of raising financial help among the local citizens to build a Memorial Speedway for the late Tony Willman who happened to be a racing mate of Doc's in the prewar days on the big tracks throughout the midwest. Doc originally hailed from Milwaukee and is an oldtimer, one of the first to introduce Model Cars in Milwaukee.

The meet at Boulder Creek was terrific on the small cars as the dirt and macadam track was not smooth enough for the high speed of the cars, causing two of them to break in two. Several boys from San Leandro participated: Ray Hook, Ronald Smith, Frank Jenkins, Cliff Fox and Ed. Schulze. Dick Milburn and a group from Salinas showed up and gave a good account of themselves. The writer extends his best wishes to both "Doc" and his wife and hopes that his efforts in obtaining the track will be a reality. *Photos and copy by W. Lloyd Baab.*

LUNING COPS POLK'S TROPHY

A HALF-MILE feature race was run off at the Long Island track directly after the Regionals on July 7th, for a beautiful trophy donated by Mr. Irwin Polk, of Polks Hobbies, New York

(*Continued on page 63*)

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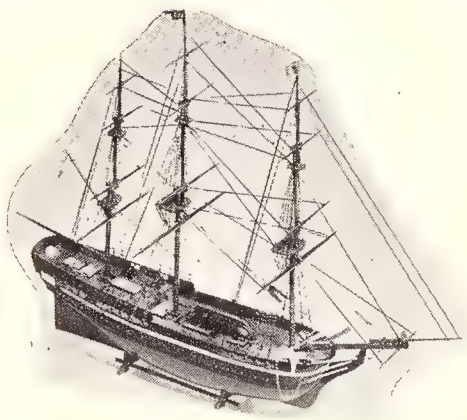

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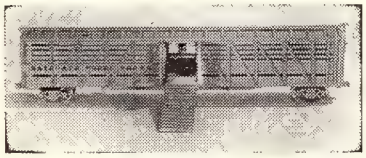

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EXPRESS REEFER

(Continued from page 28)

painting too closely to the sides after they have been put on and running the risk of smearing them. Use a good grade of oil paint or one with a turpentine base as it will go on much smoother with a brush than lacquer.

The sides can now be added, ladders installed as well as the steps and grabirons. The steps and grabs are fastened by using a drop of cement on each prong and forcing them into a hole previously made in the wood with a sharp instrument. For this very purpose. I have used a dental tool ground down to a needle point. Mine are made up in various sizes and come in very handy for general usage. Space the holes correctly by using a pair of dividers. Use ladder stock on both sides and ends, leaving enough to be bent over at right angles and forced into the sides and ends in the same manner. This allows them to project out in a more realistic fashion than if they were merely cemented flat to the car. While some express reefers have ladders on their sides, others do not. Make the brake platform from cardboard, and cement the edge of it to the car end. A staple at a 45° angle supports it. In same manner, support the ends of the roof walk. Make up the brake housing from cardboard and cement in place. The brake handle is a piece of fine wire with a drop of either cement or solder hardened on the end. A fine chain could be added for extra detail on the brake assembly. Don't forget the air line for the final detail. We have purposely omitted the couplers as all of you use different types which will require different ways of handling them. If dummies are to be used, coupler pockets will have to be added; automatics do not require them.

Paint the car a pullman green, two thin coats giving a good job without covering any detail. The trucks, four wheel passenger type, can be either pullman green or black. When the paint is dry, install the trucks and couplers, and the car is ready to roll!

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B & O COAL TOWER

(*Continued from page 30*)

and soldering salts are used quickly at each joint, adjacent ones will not unsolder. If they should, hold them with tweezers.

The spouts for the coal can be formed of metal or filing folder stock, following the shape shown on the plans and photos. A sturdier structure will result if you fasten them permanently in an *up* position. The sandspout can be made from a length of wire solder. Pulleys may be carefully turned up and bracketed so that they can be used, but my way was to use discs of bristol board with thread running over and cemented to them.

The pipe to carry the sand from the sandhouse to the sand pocket within the coal tower is wire. The truss rod frame surrounding and supporting this pipe should be carefully copied, using lighter wire and metal squares for spacers. Here again, solder is the best adhesive, although cement can be used. The design of the sandhouse is not shown, but can be a simple four-walled structure with a slight slope to the roof and one wide door to take in the "seashore."

When it comes to actual laying of tracks around your coal tower and other engine terminal facilities, do not use ties, but lay the rail right on the baseboard and scatter plenty of cinders around.

ALONG THE TINPLATE TRACK

(*Continued from page 32*)

the passenger cars similarly, they not only made them of the vestibule design externally, but were careful to put real miniature interior vestibule compartments into even the cheaper cars. The lettering on the cars and tender in this Ives train is all done in raised cast letters, not stamped on, but touched over in gold. The star herald on the box car is cast on similarly.

Wilkins put out elaborate and very realistic model baggage cars and coaches for their largest locomotive, lettered simply "Limited Express," Ives also having some smaller sized open and iron coaches with the same lettering. It was apparently only on the big "iron cannonball train" pictured here that they used the "Limited Vestibule Express." Wilkins also put out a series of iron freight cars, well designed and accurate models, consisting of box, oil and gondola cars and a four wheel caboose.

None of the later Ives trackless iron trains were either as large in size or as accurate reproductions of any prototype as the model illustrated here. A comparison of it with their deluxe (but considerably smaller) iron pull engine of 1910, pictured in this department two months ago, will reveal interesting variations, not only in prototype style and fidelity of reproduction, but in maufacturing style as well. Indeed, it may well be that the 4-4-0 pictured here, the big iron engine of 1890, is the most accurate and closely scaled replica of any prototype locomotive ever turned out by Ives in all their years of business.

One other fact of American tinplate industry in the late nineteenth century,

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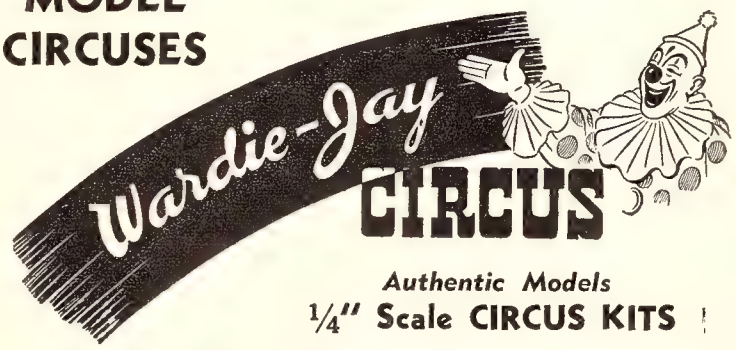

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reveals interesting strivings toward realism. During the 1870's and 1880's, Beggs, with their live steamers, much like other manufacturers with trackless pull and clockwork trains, had achieved somewhat of a typical style. In most of the Beggs models, however, it represented a somewhat more accurate approach to the real thing in certain aspects, particularly the reproduction of such parts as the stack, domes, cab, pilot, etc. There was no attempt, however, at the actual modeling of a real locomotive, the typical styles being the 2-2-2 and 4-2-2.

Late in the 1880's, however, Beggs also undertook to produce a more accurate replica of the real thing in the form of a 4-4-0 type, appearing during the following years in a variety of minor types, wheel diameters and spacings, boiler detail, etc. Mechanical design requirements for a built-up live steamer such as the Beggs, of necessity limited the amount of accuracy which it was possible to build into a toy and still retain an attractive retail price. Nevertheless, the desire was to create something which more closely resembled a real locomotive than did its predecessors.

The illustration shows one of these deluxe Beggs trains of about 1890, complete with eight wheel tender with real coal, and two of the usual Beggs cardboard cars. While the degree of fidelity of reproduction to the original is by no means as great as in the Ives iron model shown, it did represent in its day a hitherto unreached peak of quality and seemed to even the most critical, a real working model of a prototype in every sense of the word. Later models of Beggs 4-4-0's of the 1890's endeavored to improve the effect by lengthening the boiler

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and increasing the diameter of the wheels. The final effort, however, consisted of reducing and realigning the proportions of the engine to an even more accurate copy of the real thing, greatly improving the design of the tender body and substituting more modern domes, stack and headlight for that period.

These 4-4-0's were always simply the deluxe locomotives in the Beggs' line, and the cheaper 2-2-2's and 4-2-2's continued to be manufactured in a variety of forms as the mainstay of their line.

In our review of the new 1946 Tinplate developments, we described the new Lionel water tank, through whose translucent sides the level of the water within the tank may be seen rising and lowering. At the time, we did not know how this effect was accomplished, and were under the impression that actually there was no water in the tank.

We have since been put in possession of the technical details of this model and will pass them along here, together with a correction about the water. There is water in the tank and it does rise and lower. The effect is accomplished very ingeniously, for the tank is actually double, an outside tank with translucent walls and an inner tank whose walls set back a slight distance from the outer ones. This inner tank is equipped with a small working electric pump. The water can be pumped out of the inner tank into the outer one, during which the level of water is seen to rise through the translucent walls. When the water in the outer tank flows back to normal level in the inner tank, the water is seen to lower, producing the effect of the water level lowering in the entire tank as water is pumped into the locomotive tender.

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Books for the "Hi-Railer" ..... Jan. '45
"Combination" Stations ..... Feb. '45
Smooth Scaling ..... Mar. '45
Car Kinks ..... May '45
Tin-Types "Trued to Life" ..... June '45
Along the Tinplate Track ..... Monthly Feature

TROLLEYS

Model Cattle Car (Prototype Dimensions) ..... July '44
Shooting Trouble on HO Motor Trucks ..... Oct. '44
Trolley Wirework ..... Nov. '44
Draw Your Own "Interurban" Plans ..... Dec. '44
Combination Interurban Car ..... Jan. '45
Interurban Depot & Substation ..... Feb. '45
Practical Special Work ..... Mar. '45
Hudson & Manhattan Tube Cars ..... Mar. '45
Interurban Mail ..... Apr. '45
Electric Railway Power House ..... May '45
"Open Air" Elevated Railways ..... June '45

MISCELLANEOUS

6-Inch Naval Gun ..... July '44, Mar., Apr. '45
Amphibian Troop Carrier ..... Aug. '44
Building Model Locomotives ..... Jan., Feb. '45
Useful Car-Building Hints ..... Mar. '45
A Circus Wagon ..... Mar. '45
An Old Fashioned House ..... Apr. '45
Ladder Truck ..... Apr. '45
Annual Index ..... May '45
1946 Annual Index ..... Free on Request

AIRPLANES

Helldiver, SB 20-1 (Prototype Dimensions) ..... July '44
Accipiter VI, Class D ..... July & Aug. '44
"Tornado," Class B Guide-Liner ..... Sept. '44
"Scrappy," A or B Gas Model ..... Oct. '44
A De Luxe Glider ..... Nov. '44
"Elwy," Class C Gas Model ..... Dec. '44, Jan. '45
Dartwin Speedster, Class A, B, C Control-Line ..... Feb. '45
"M-C Special" Guide-Liner ..... Mar. '45
"Squatty" III, rubber-powered Class D ..... Apr. '45
"Speed-Wall," rubber-powered ..... May '45
"Thermite," Class C Glider ..... June '45

ELECTRICAL ARTICLES

Magneto for Boat Engines ..... July '44
Home-Made Telephone ..... July, Aug. '44
Battery Changing Hints ..... Aug. '44
Switch Motors from Doorbells ..... Oct. '44
Polarity Indicator ..... Oct. '44
A. C. Power Supply ..... Nov. '44
Radio Control for Model Layouts ..... Dec. '44
Crossing Gates, Electrically Controlled ..... Dec. '44
Wind Your Own Magnet ..... Dec. '44
Storage Battery Hints ..... Jan. '45
Direct Current Supply Power ..... Apr. '45
Home-Made Rheostats ..... June '45

SHOP WORK

Cutting Irregular Holes ..... Dec. '44
A Wheel Remover ..... Dec. '44
Alcohol Soldering Torch ..... Feb. '45

BOATS

Magneto for Boat Engines ..... July '44
"Misfily," Prize-Winning Model Speed Boat ..... May '45

RACE CARS

Molding Car Bodies ..... July '44
Getting Ready for Racing ..... Mar. '45
Building a Model Race Car ..... May thru Nov. '45
How to Get More Speed ..... May '45

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LUNING TAKES TROPHY

(Continued from page 57)

City. Fred Luning wheeled his iron in at 112.78 MPH to win the trophy—a scale model of a Standard Indianapolis Racer. It was an aluminum casting, painted a light sky-blue, with lithographed scale dials on the dash. The car comes fully equipped with genuine rubber tires and turned aluminum wheels, even down to hub-handles as on regular race cars. The model is 12 inches long, mounted on a solid mahogany plaque with a gold engraved plate. Competition was really keen for this award, with eighteen contestants exerting every effort to take home the bacon.

	½ Time	MPH
1. Fred Luning	15.96	112.78
2. J. Jaciow	16.12	**111.66**
3. Frank Luning	16.55	108.82
4. T. Drower	16.79	107.27
5. A. Remez	17.16	104.98
6. E. Fitzgerald	17.34	103.80
7. W. Martine (proto)	17.44	103.21
8. F. Valeo	17.80	101.12
9. W. Wellenberg	17.85	100.89
10. D. Deus (proto)	17.94	100.33

SALINA'S STILL PLUGGING!

WEEKLY racing at the Salina, Kansas, track is proving quite popular, with large crowds showing up regularly. Despite the wicked heat, the boys are finding their stride and turning up good times. July 14th, some of the boys encountered minor troubles, some of which were easily cured. C. McCullem broke his needle valve and, not having a spare, was forced out for the day. In his next to last heat, E. Vernon threw an outside tire, not causing any damage but slowing him down. A. Goedde found out he really had a hot motor when the drive wheel loosened enough to let the motor rev up without a load. It sounded like it was doing 20,000 RPM's while the car was hitting about 95 MPH. Al is now looking around to get rid of friction and drag as he is certain his motor is good for more speed. "Pappy" King, still away on a fishing trip, will have to get into high gear as Joe Addison slipped into a new spot to put the ½ mile record up to 105.63 MPH. Top speed is an enviable place but Joe says it's sure rough to have a bunch of vultures clutching at a fellow. They're surely after him now, so, Joe—look out! "Corky" St. Clair is rebuilding his Matthews-Hornet job into a Matthews-McCoy unit, using the Matthews top and bottom castings with new wheels and front axle. "Corky" says things are going to happen in just about two weeks as he is shooting for a 110 MPH or bust! Top speeds for the day follow:

	MPH
J. Addison, McCoy-Hornet	105.63
E. Vernon, McCoy-Hornet	101.12
J. Barrett, McCoy-Hornet	100.44
A. Goedde, McCoy-Hornet	100.00
C. Hedges, McCoy-McCoy	92.40

On July 27th, the boys came out in full strength to take a crack at the top speed. Fred Magee, just returned from the service, had his "hot iron" out to renew acquaintances and get the feel of things. Roy Goedde, also back from service, brought out a new McCoy-McCoy.

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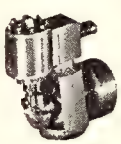

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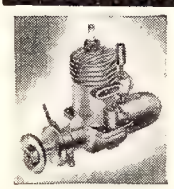

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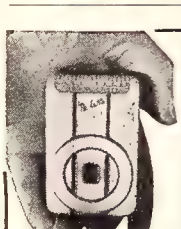

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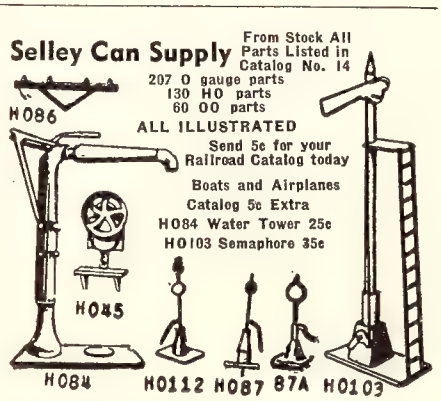

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to offer competition. He did well with little experience plus a new car, for he climbed right above his dad, who is an old hand at the sport. Lt. Schueck was also out after being on furlough. That well known heckler, "Corky" St. Clair, challenged Joe Addison to a feature five mile race, with the results below telling the tale. How about some of the rest of you gents around the country trying it out and report your speeds? Both cars were timed from the end of the first lap when the cars were under their own power (virtually a standing start).

Speeds for the day follow:

SPUR

	MPH
J. Addison, McCoy-Hornet	102.27
L. Cross, McCoy-McCoy	99.22
E. Vernon, McCoy-Hornet	97.61
F. McGee, Matthews-Hornet	97.61
C. St. Clair, Matthews-Hornet	97.19
J. Barrett, McCoy-Hornet	96.35
R. Goedde, McCoy-McCoy	95.74
F. King, McCoy-Hornet	94.93
A. Goedde, McCoy-Hornet	93.94
Lt. Schueck, McCoy-Hornet	90.00

PROTO

P. Brooke, Dooling-McCoy	89.28

FIVE MILE FEATURE

J. Addison, McCoy-Hornet, 3' 11.02", average	94.14
C. St. Clair, Matthews-McCoy, 3' 12.14", average	93.75

FIRST RACE COMING UP FOR HARVEY CLUB

THE Harvey Model Race Car Club of Harvey, Ill., will hold its first race on Sept. 8th. The boys are all hard at work getting the track in shape for the big event. The pit is being enlarged, more work benches constructed and many general improvements will be made. The race will begin at 12:00 noon, seven trophies to be awarded in both spur gear and proto classes. Their track is located at 144th Street & Center Ave., Harvey, Ill.

The entire club is rather proud of the records made by their members this year. Five trophies have been won so far, which is very good for a new club of only fourteen members. John Carlson placed third in spur gear with 105.63 MPH at Kankakee on May 12th for the season's first trophy. "Red" Davis came up with the second trophy by placing sixth with 101.69 MPH at Champaign on May 19th. They are particularly proud of their showing at the Danville Regionals, when three members made the trip and all three brought home winnings. "Red" Davis tied for 9th place in the Spur class with 103.69 MPH, and John Carlson came in 11th with 102.50. In the proto, "Hap" Wycoff placed 4th at 98.90 MPH and would have had the opportunity of bettering that time if his car hadn't smashed up at the end of his second run. The rear bridle bolts sheared and the car flew through the air and ended up in the wire fence! The car was badly wrecked, but with the help of Joe Olender, of Indianapolis, "Hap" should have his iron back in the running.

You fellas who are interested in cable racing, should contact "Hap" Wycoff at 4708 Ellis Ave., Chicago 15, Ill. Phone Drexel 3453.

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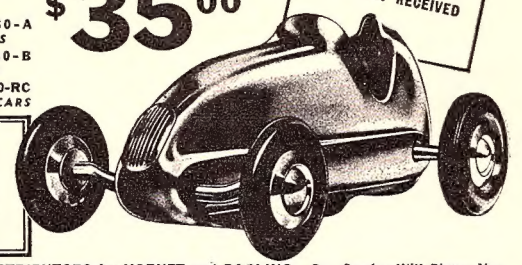

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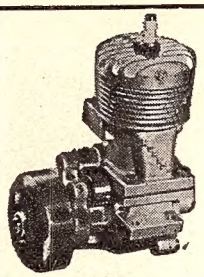

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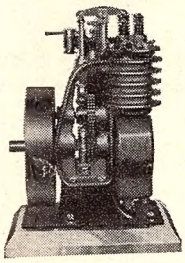
MODEL: *Gasoline Engine*



7¾" high—3" wide
Cyl. 1" dia.; stroke 1"

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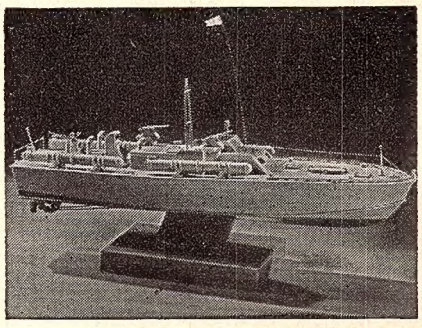
ATTENTION CALIFORNIANS!

LL fellows in the vicinity of Huntington Park, Maywood, Southgate, Bell and East Los Angeles, California, who are interested in Model Race Cars should contact Charles M. Lee, 6422 Alamo Ave., Bell, Calif., for the fine possibility of building a track in Huntington Park. The City Dads are very much interested and only want the names of a few more fellows before giving their "go ahead."

SUSQUEHANNA VALLEY

THOSE lads from Susquehanna Valley finally got around to running on a SMOOTH track, eight of them making the long trip to the LIARS track to enter four cars on June 23rd. Most of them made the entire trip in one day, in addition to actual racing! The trip proved fruitful, for Ralph Hendrickson came home with the bacon with a car that had never run in a contest before! He pushed it off to three heats with speeds ranging around 107 MPH! While running it previously to the race on their parking lot track, he broke his timer arm and had it held on with a prayer! Dick Bell ran his beautiful proto, a copy of the car in which Floyd Roberts was killed at Indianapolis, but he had more than his share of bugs and only got one full heat run. His speed was 87 MPH. Dave Reed got out his old Dooling Mercury and screamed around the track for a blistering 65, 67, and 66 MPH. The entire crew had a fine time and learned many new kinks.

There are many fellows who want to get into the game, once new cars get rolling again. Any other club around this area who have a track, should contact Dave Reed, Jr., Box 11, Vestal, N. Y., for they are anxious to get together for racing.



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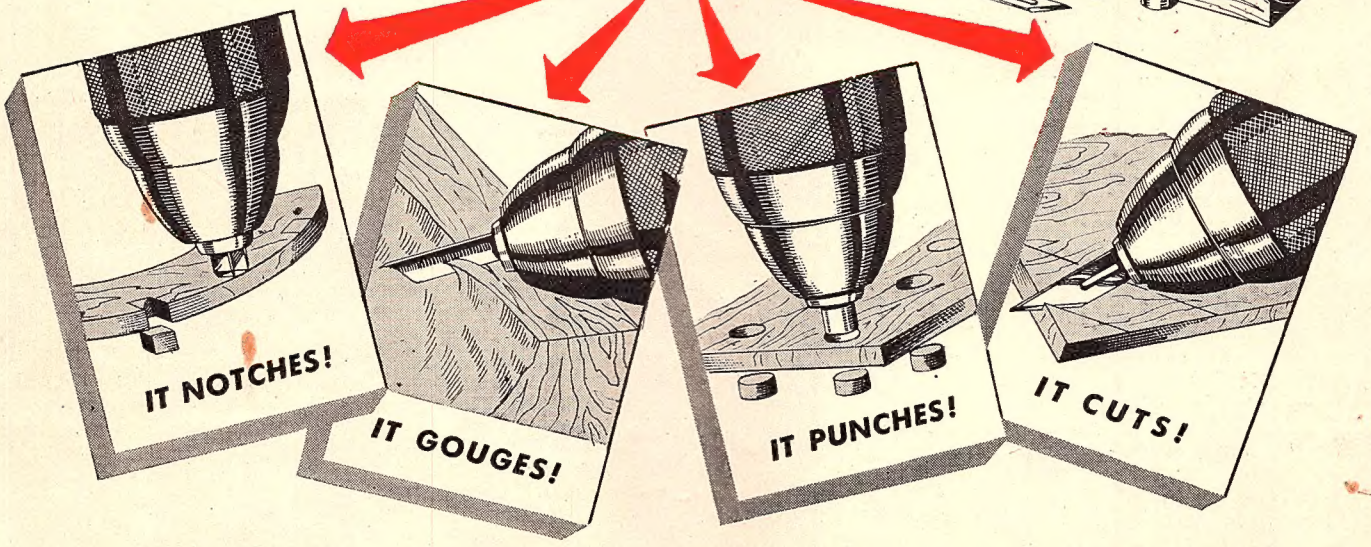

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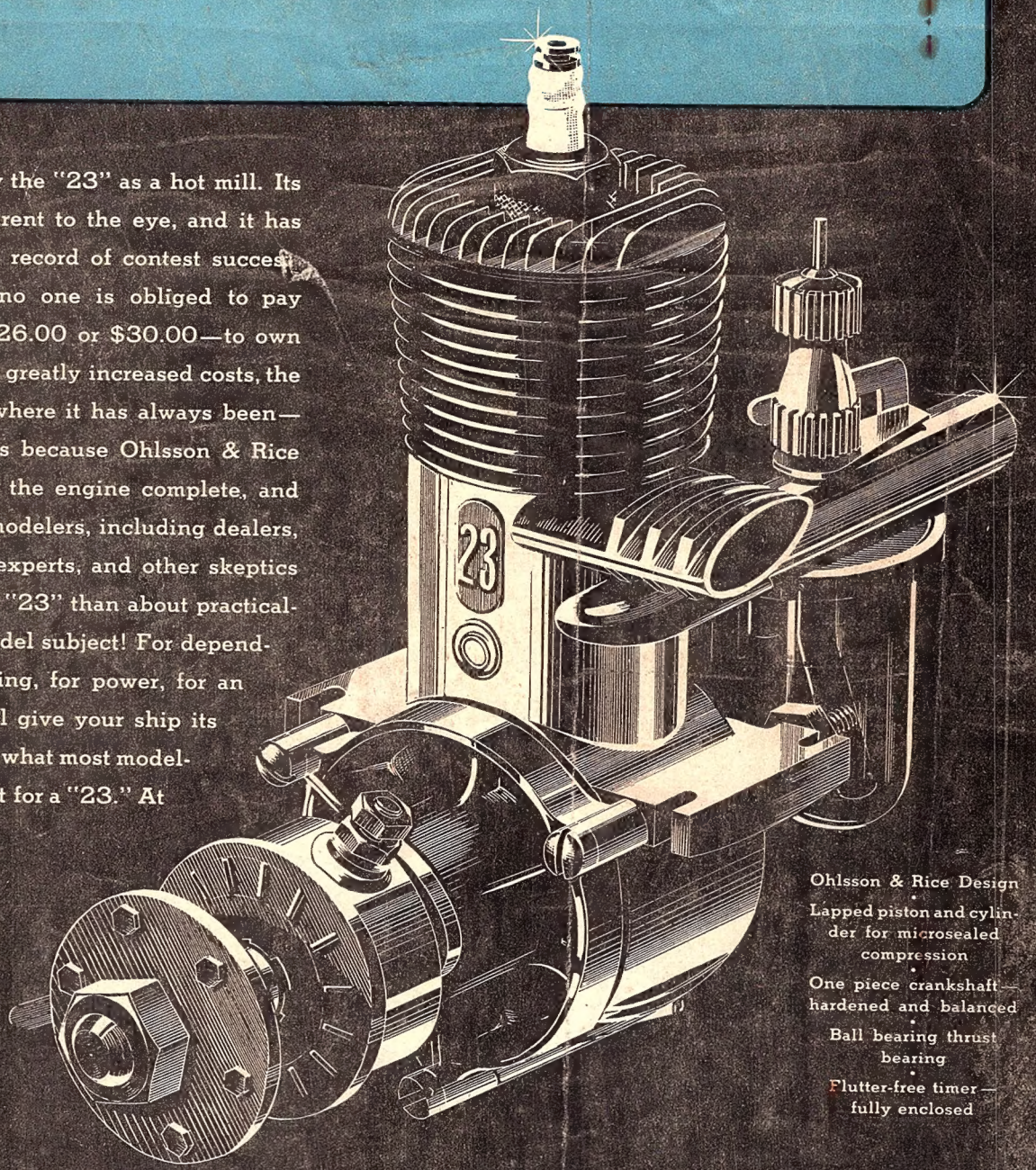

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